Tax Minimisation and Firm Value with the Moderating Effect of Corporate Governance on UK's FTSE 350

BY

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A Thesis

Submitted In Partial Fulfilment of the

Requirements of the Faculty of Management

For the Degree of

Doctor of Philosophy

November 2020

Dedication

I dedicate this thesis to my beloved niece Mayar, your support and unconditional love made this idea reality. You are and will be always remembered.

Rest in peace beautiful soul.

Acknowledgements

This work is sponsored by the Libyan Higher Education Ministry and Benghazi University in Libya. I am grateful beyond words for their support during my PhD journey and to release this work in this form.

I am immensely grateful to my supervisory team, Doctor Alan Kirkpatrick who expertly guided me and supported me during this journey. His patience, motivation and knowledge generously continued throughout my PhD journey to the end. I am extremely grateful to Professor Donald Nordberg who has been the fountain of the inspiration that guided me towards completing this work. His tolerance and consideration are beyond the expectation at all times. My appreciation also goes to Doctor Tony Abdoush for his insightful comments and massive support. I am indeed fortunate in having such a team supporting me to make the idea of this thesis become a reality.

Besides, I would express my thankful feeling to my colleagues at Bournemouth University for their support and motivation. To my family and friends for courtesy, faith in me and in my strength to complete my PhD to the end.

I am thankful to the BU staff for their helpful assistance that I have received during the research journey.

Last, but not least, thanks to those who I have not mentioned but who have been sources of inspiration and encouragement during this important time in my life.

Abstract

Tax minimisation is a corporate financial strategy which can improve profitability by retaining earnings, thus lowering the need for external capital. The resulting tax minimisation, while often legal, represents a loss of revenue to the government and shifts the cost of public services to others. Governments, including the UK, have tried in recent years to take a stronger line on such activities, with mixed results. However, the overall effect of tax minimisation on firm value is still obscure. To understand tax minimisation in greater depth, this study examines two primary questions: Firstly, how does the relationship between tax minimisation and firm value vary across different methods of tax minimisation? Secondly, do corporate governance mechanisms affect the level of tax minimisation and in consequence, firm value? The results of this research contribute to knowledge by shedding light on both the extent of variation and evaluation regarding the relationship between different components of tax minimisation and different measures of firm value, with reference to corporate governance characteristics in UK FTSE 350 companies. Additionally, the results of this research support shareholders and tax authorities in recognising, observing and monitoring tax minimisation activities in one side and support managers to understand the consequences of utilising different components of tax minimisation in promoting profitability. This study investigates the association between different components of tax minimisation and firm value, and examines the moderation role that corporate governance mechanisms play on this relationship. The findings help in providing evidence that tax minimisation valuation by investors varies across different components and different indices. The study furthers the understanding of the reason underlying the difference in the findings of the relationship between tax minimisation and firm value by shedding light upon firm value from different angles by studying both investors and managers perspectives towards firm value. This differentiation in both viewpoints is considered to be one of the research contributions to the existing body of knowledge. The results of this research show that it is significant to examine the indices separately to understand the behaviour trends as each index has different characteristics and perceptions, and thus, different outcomes.

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List of Acronyms and Abbreviations

ABS	Annual Business Survey
ATAP	Anti-Tax Avoidance Package
BAFA	British Accounting and Finance Association.
BEPS	Base Erosion and Profit Shifting
BTDs	Book Tax Differences
CETR MINI	Cash Effective Tax Rate Minimisation
CETR	Cash Effective Tax Rate
CGT	Capital Gains Tax
CT	Corporation Tax
CTA	Corporation Tax Act
DEPRMINI	Accelerated Tax Depreciation
EU	European Union
FDI	Foreign Direct Investment
FRC	Financial Reporting Council
GAAP	General Accepted Accounting Principle
GDP	Global Gross Domestic Product
HMRC	Her Majesty Revenue and Customs
IASB	International Accounting Standard Board
IFRS	International Financial Reporting Standards
IT	Income Tax
ITA	Income Tax Act
LSE	London Stock Exchange
MNCs	Multinational Companies
NIC	National Insurance Contributions
NGOs	Non-Government Organizations
OECD	Organisation for Economic Co-operation
PAYE	Pay As You Earn
PDs	Permanent Differences
PRE	Permanent Reinvested Earnings
PWC	Price Waterhouse Coopers
R&D	Research and Development

ROA	Return on Assets
RR	Robust Regression
SIG	Special Interest Group
STR	Statutory Tax Rate
STRDs	Statutory Tax Rate Differences
TDs	Temporary Differences
TIEAs	Tax Information Exchange Agreements
TIOPA	Taxation (International and Other Provisions) Act
UK	United Kingdom
US	United State
VAT	Value Added Tax
WellG	Well Governance

CHAPTER ONE: INTRODUCTION

1.1 Introduction

This research examines the relationship between tax minimisation and firm value while considering also the moderating role of the external and internal corporate governance mechanisms in this relationship. As the information relating to tax may be considered as somewhat opaque, this study utilises book tax differences components to measure tax minimisation to examine whether this relationship is significant. This examination controls for some firms' specific features such as leverage, foreign sales, dividend, earnings management and capital intensity. The investigation of this research begins with an examination of the relationship between tax minimisation components and two measures of firm value namely Tobin's Q and return on assets (ROA) and then examines whether corporate governance mechanisms moderate this relationship.

The results of this research provide evidence that investors' value tax minimisation components differently in different indices and suggest that it is important to examine the indices separately to understand the behaviour of the trends as every index has different characteristics and perceptions, thus different outcomes. This study distinguishes itself from previous studies by focusing on international companies listed on FTSE 350 for the period 2014 to 2016, which is the period after the financial crisis and during the reduction of the tax rate from 28% to 21% and then to 20%. This is to examine whether the period after the financial crisis and during economic prosperity along with the reduction of the corporate tax rate have led to different outcomes of this relationship. In addition, this study utilises two different measures of firm value, namely Tobin's Q and ROA, to identify whether different measurements provide evidence of different outcomes and to explain those differences. Furthermore, this study is the first to be conducted in the UK that examines the relationship between three different components of tax minimisation and two different measures of firm value. This is done simultaneously by considering two different corporate governance mechanisms, of which one is internal and the other is external, namely total executive remuneration and institutional ownership, respectively, in order to

examine the moderating role that corporate governance mechanisms play in this relationship. The reason behind choosing those two mechanisms is that both of them reflect the agentic behaviour. For example, CEO remuneration links to managers who are self-serving (traditionally), in which agency theory states that managers are self-serving and are ignoring shareholders interests. Thus, managers are more likely to get paid more and capture the board, for these reasons CEO remuneration can be used as a proxy for self-serving managers and as an example of week board and agentic behaviour.

This research contributes to various fields; literature, methodology and practice, which is explained briefly in this chapter and in details in chapter 8. This chapter is designed to paint an outline portrait of the study, starting with a brief depiction of the background and motivation that underlies the rational for its undertaking. The structure then moves on systematically to present the dilemma inherent within the study by pointing out two salient questions and sub-questions in addition to the objectives. The research methodology and the construction of the chapters provide an overall view of the contents of the thesis. In addition, the chapter contains a list of presentations conducted by the researcher. Finally, the chapter outlines the limitations of the study and articulates a conclusion. To the author's knowledge, this research is thought to be the first research that examines, interprets and explains the difference in the results between FTSE 350 constituents, namely FTSE 100 and FTSE 250, and then presents an explanation of this difference for each individual index.

1.2 Motivation of the Study

Since 2005, all listed companies in EU countries are required to prepare their consolidated financial statements under the International Financial Reporting Standards (IFRS). As a result, the UK large companies are required to prepare two types of reports; a tax report prepared under IAS 12 (considering both current and deferred tax expenses) and a financial report under the IFRS. This leads to the inclusion of both expenses (current and deferred) in income tax expenses in the financial statements. The preparation of the two different reports under the two different rules leads to create book tax differences (BTDs), which comprise; normal BTDs, earnings management and tax minimisation. Whilst, the normal

component results from the normal differences in treating expenses and revenue for both tax and book purposes such as the allowance and depreciation for doubtful accounts, it can also be utilised for earnings managements purpose. In addition, tax minimisation can be considered as a continuum that involves less aggressive legal transactions such as municipal bonds investments and more aggressive transactions such as transactions that their legality are less certain (Blaylock, et al, 2012).

The concern of tax minimisation issue has risen since the financial crisis of 2007 to 2009 and the subsequent of strain on public finances, and an increase attention has been paid to government agencies such as Her Majesty's Revenue and Customs, (HMRC), non-government organisations (NGOs) and the Organisation for Economic Co-operation and Development (OECD). This attention calls to attenuate the deleterious effects of efforts to minimise taxation. In addition, this concern has led to an explosion of interest and research from a wide range of academic fields, especially after the Chancellor of the Exchequer declared in the pre-budget report in 2007 that a review designed aimed to investigate how anti-avoidance legislation can achieve the purpose of simplicity of the tax law and ensure revenue protection (Tracey, 2009).

Taxation in general is considered as the main financial resource of the UK. Over the decade 2006 to 2016 Income Tax (IT), Capital Gains Tax (CGT) and National Insurance (NICs) contributed 56% of the UK government's total receipts with Value Added Tax (VAT) and Corporation Tax (CT) contributed an average of 20% and 10% respectively (HMRC, 2016a). This research concentrates only on corporate tax, which contributes to 10% of the government total revenues as mentioned above. Tax minimisation practices by individuals and corporations are recognised as an important issue in most countries, resulting in strategies of cooperation between nations such as the OECD's base erosion and profit shifting (BEPS) initiative (OECD, 2013) the EU's Anti-Tax Avoidance Package (ATAP) (EU, 2016). These procedures could contribute to the reduction of billions of pounds the government loses every year through the corporate tax minimisation activities of large companies. On the other hand, the priority of any business is to create a profit in order to retain earnings, reduce the reliance on outside financial

resource in funding investments and increase shareholder wealth. This motivates companies to enhance their profitability by legally reducing tax liabilities through tax minimisation strategies. The difference in both parties' interests; government and companies generate a strong objectives' conflict, which leads to information asymmetry dominated by the companies.

The UK tax authority has increased its attentiveness to tax minimisation issues and has increasingly tackled the reduction in companies' tax payments. For example, implementing tax risk classification is one of the strategies that the tax authority applies to limit annual losses in the UK's revenue. Hence, companies could be evaluated via tax risk assessment whether or not they have been involved in tax minimisation before the HMRC investigation (Hampton, 2005). The purpose of using this assessment is to reduce the variation in payment of corporate tax by companies, and to tackle the tax minimisation that costs the government £400 bn every year (Stiglitz, 2019).

It is thought that multinational companies (MNCs) are using complex tax arrangements to reduce their tax liabilities. This might be because of the ambiguity of legislation and/or the characteristics of those companies. This focuses the awareness of shareholders on the benefit to be expected from tax minimisation activities. Although there is a lack of tax information disclosure amongst companies, shareholders could evaluate tax minimisation differently (De Simone and Stomberg, 2012, Inger, 2014). Managers avoid disclosing to shareholders the full tax information relating to their risk management activities for tax purposes, which can generate a shelter for manager's opportunism and rent diversion reasons (Desai and Dharmapala, 2009). Thus, in their evaluation, shareholders should consider both the benefit and the risk of the engaging in tax minimisation activities (Chyz, 2010, Desai and Dharmapala, 2009).

Many studies have been conducted into tax minimisation activities, involving large numbers of companies, to investigate the impact of tax minimisation activities on corporate value (Desai and Dharmapala, 2009, Chyz, 2010, Kim et al., 2011). Few studies however consider the evaluation of different components of tax minimisation and their relationship to firm value in the UK and a global

context (Abdul Wahab, 2012, Inger, 2014). While lowering the tax bill would seem to leave corporations with more resources to invest in the business, a growing amount of evidence collected in recent years suggests a counterintuitive outcome: that tax minimisation can be ineffective in increasing firm value and promoting shareholders' wealth (De Simone and Stomberg, 2012, Wilson, 2009). While some studies assume that the relationship between tax minimisation activities and firm value is primarily positive, Desai and Dharmapala (2005) indicate that tax minimisation activities do not associate directly with firm value. Relationships between corporate governance, managerial equity incentives, and tax minimisation are integrated; hence, there are ambiguous conclusions in the existing literature. Scholars have observed that various components of tax minimisation by firms are still vague, and suggest further exploration in the accounting literature, utilising the knowledge of financial statements and institutional details to provide significant contribution in the coming era (Hanlon and Heitzman, 2010).

Many studies investigate the relationship between tax minimisation and firm value, such as Desai and Dharmapala (2009), Wilson (2009); however, they do not record whether investors distinguish the different methods used in these activities and value them accordingly. Desai and Dharmapala (2009) indicate that tax minimisation is positively associated with corporate value in cases involving a high institutional ownership. In addition, tax minimisation is considered as leading to augmented after-tax earnings, thus, to be in the interest of shareholders. This is naturally taken to enhance firm value.

Wilson (2009) demonstrates that a firm engaging in tax savings reveals a considerable subsequent book-tax gap (the difference between taxable income and book income) in US multinational companies. Examining the relationship between tax minimisation and the relative rigour of corporate governance, he finds that companies with strong corporate governance show a positive, abnormal return during the period of engaging in tax saving. This result supports the view that tax minimisation activities increase shareholders' wealth in well governed companies. In contrast, this benefit is reduced in poorly governed firms. Koester

(2011) explores how uncertain tax minimisation positions [1] resulting from disclosure of contingent tax liabilities that are subsequently disputed at tax return audit are positively associated with the investor's evaluation. He demonstrates that tax-related contingent liabilities and other liabilities are perceived in different ways. Moreover, investors use past uncertain tax minimisation as a sign for future uncertain tax minimisation. According to Chyz (2010), tax minimisation is, on average, positively associated with firm value, where managers exhibit tax-aggressive behaviour. Moreover, this increase in firm value corresponds with aggressive managers' behaviour which is possibly related to increases in agency costs. This is consistent with the agency view of Desai and Dharmapala (2009) that the increase of firm value with the existence of aggressive management is notable only in companies with better governance. Although these studies confirm that investors value tax minimisation activities positively, there is a lack of studies that examine the investors' valuation behaviour with considering different perspectives of tax methods, thus, increase suggestion to study this subject from different angles (Inger, 2014). This study widens the knowledge base, by investigating the investors' evaluation of different components of tax minimisation measured by book tax differences components, namely permanent and temporary differences together with overseas tax rate differences as these components require further explanation (Hanlon and Heitzman, 2010).

Inger (2014) explains that different methods of tax minimisation are evaluated differently, and its impact on firm value varies according to factors such as; tax risk, degree of permanence, tax minimisation activity cost; implicit taxes, and diversity in disclosure of tax reduction in financial statements. Every method of tax reduction has different features: some for example generate permanent tax savings, such as share option tax benefits (with assumption of the rules and regulations are not changed). While others have timing effects, as can be seen in accelerated tax depreciation deductions. From the investor's point of view, the significance of permanent tax reductions exceeds that of temporary ones. She

[1] Firms are required by financial reporting standards to separately report their contingent liabilities for tax positions, which might be disproved in the tax audit. The disclosure provides information to investors about the size of tax minimisation activities by firms via uncertain tax minimisation. Tax position indicates the determination of whether and/or when a transaction is deductible or taxable, due to the ambiguity of corporate tax law (Koester, 2011).

finds that temporary difference has no impact on firm value; however, deferral of residual tax on overseas earnings has negative impact on firm value. In contrast, Abdul Wahab and Holland (2012) suggest that in line with agency theory of tax minimisation and because of the existence of information asymmetry, shareholders do not value permanent difference as it can lead to moral hazard or fear of it. However, they do not examine the interaction between corporate governance mechanisms and both temporary difference and statutory tax rate differences.

This study differs from the previous studies by concentrating on two components of book tax differences, permanent differences and temporary differences, together with considering statutory overseas tax rate differences as a component of tax reduction. This is to examine whether investors (in FTSE 350 in general and FTSE 100 and FTSE 250 separately) distinguish between different tax minimisation strategies in their companies valuation, while considering other factors that could influence the valuation decisions, such as corporate governance mechanisms and companies' specific features.

Tax minimisation is considered to be one of the most significant topics relating to tax issues. There are several reasons underlying conducting this study. First, corporate tax is a fundamental revenue resource of most nations; in the UK, it counts for 10% of the UK government's revenue. Thus, government is responsible for monitoring over companies to ensure the fairness in their tax payment, which has increased the scrutiny of both tax legislation and the amount of tax paid by companies over the last decade (Whiting, 2006).

Second, the HMRC's anti-avoidance strategy aims to reclaim billions of pounds the government loses every year through the tax minimisation activities of large companies. Third, tax minimisation is a significant ethical issue, which the public consider MNCs, and economic experts are required to address. In addition, tax minimisation can make MNCs appear to be socially irresponsible, as the higher the level of social responsibility performance, the lower the level of tax minimisation (Lanis and Richardson, 2015, Hoi et al., 2013). Apart from corporation tax, firms also need to be recognised as making their contribution to the economy of the country in other constructive ways, such as through quality

employment, supply chain ethics and environmental policies (Dowling, 2014, Fisher, 2014).

This research differs from previous research by focusing on the variables of tax minimisation, which are measured by book tax differences and its components: temporary differences, permanent differences and statutory overseas tax rate differences, along with control variables, such as capital intensity, earnings management, leveraged, foreign operation and dividends. Firm value is measured by Tobin's Q and return on assets (ROA), and corporate governance is measured by institutional ownership and executives' remuneration. The literature review of this research in chapter two outlines the existing evidence linked to tax minimisation research, and will identify any gaps related to knowledge. This confirms the area that needs more investigation and exploration, which concerns the impact of different tax minimisation components on different firm value measures. In this part, the relevant literature was reviewed and analysed regarding the selected variables of the research. From the analysis of different literature sources, it is identified that MNCs not only play a vital role in the host country's economy, but they also go beyond that, to the economy of the wider world. The question remains whether the impact is positive or negative; thus, the impact of tax minimisation, corporate governance and the association between them are analysed in this study. Therefore, the motivation of this research is to provide evidence concerning the impact of different tax minimisation components and corporate governance mechanisms on two different measures of firm value in order to explain that investors value these components differently in their firm valuation in the UK setting. The MNCs referred to are the companies that are listed on FTSE 350 index in the London Stock Exchange.

In regards to considering corporate governance mechanisms as a moderating role in the relationship under investigation. Arguably, corporate governance plays a significant role in regulating companies' tax minimisation strategies, as it has obtained its international significance after the financial crisis in 2008. This is as a result of rising corporate scandals and public protests on large remuneration for executives. In addition, both corporate governance mechanisms applied in this research namely institutional ownership and executive compensation can be related to the agentic behaviour. This is as stated by Jensen et al. (1976) agency

costs comprise monitoring expenses undertaked by principle such as the cost of control and evaluate agent's behaviours which can be seen in managerial compensation, budget restrictions and rules operation. Moreover, agency costs comprise the agent bonding costs whether monetary or nonmonetary costs to guarantee that principle are remunerated by the agents in case of any harmful actions made by the agent. Besides, residual losses, which comprise costs, occurred as a result of the differences between agent decisions and the decisions that could lead to maximise principals' value. Regards to agency theory, the existence of information asymmetry between shareholders and managers motivate managers to maximise their wealth instead of shareholders wealth, due to manager can have more access to the information than shareholders, which limit the ability of the latter in monitoring the former performance. In this context, Desai and Dharmapala (2009) state that the agency contract could not be at the ideal level for shareholders for tax minimisation related reasons. Those reasons are CEO remunerations are not attached to their genuine effort and to prevent the manager from engaging in tax minimisation and reducing tax liabilities companies should have a reliable internal control system, due to any tax minimisation plans would be run privately by manager. Regards Institutional ownership, the nature of ownership structure in the UK is widely dispered (Short and Keasey, 1999; Faccio and Lang, 2002) and agency problems occur in dispered ownership structured companies as a result of the existence of information asymmetry and the conflict between managers and shareholders(Jensen and Meckling, 1976; Hart, 1995). Bird and Karolyi (2017) argue that companies with high institutional ownership tend to engage aggressively in tax minimisation in particular international tax minimisation strategies, such as transfer price and the use of tax heaven. In addition, Desai and Dharmapala (2009) find that institutional ownership plays a moderating role in the relationship between tax minimisation and firm value measured by Tobin's Q, in which the relationship is positive for the companies with a high level of institutional ownership as predicted by agency theory.

1.3 Research Objectives and Questions

1.3.1 Research Objectives

The main purpose of this research is to examine the influence of different components of tax minimisation namely; permanent differences, temporary differences and foreign statutory tax rate differences on investors' valuation in the UK FTSE350 generally and FTSE100 and FTSE 250 separately. While at the same time, examine the moderating role that corporate governance mechanisms play on this influence. The research objectives can be stated in detail as follows:

1. To examine whether the relationship between tax minimisation and firm value differs according to tax minimisation methods in the FTSE 350 companies in general and FTSE100 and FTSE 250 in particular.
2. To identify the alternative methods of tax minimisation activities and determine whether investors consider the differences between these methods in their valuation.
3. To examine whether different firm value measurements have different influence on tax minimisation activities.
4. To examine whether corporate governance mechanisms play a moderating role in the relationship between tax minimisation and firm value measured by different measurements.
5. To develop a new methodological model, grounded in the current models, which have a broad impact on relevant fields of publication and a positive impact for students, business, universities and HMRC.

1.3.2 Research Questions

The main aim of this research is to examine the extent to which the relationship between tax minimisation measured by book tax differences and firm value varies across alternative methods in the UK large companies defined by FTSE 350 generally and FTSE 100 and FTSE 250 separately.
The research questions are as follows:

Question One: How do different methods of tax minimisation affect firm value?

To extend the evaluation of tax minimisation methods, an examination of the book tax differences (BTDs) components is conducted, using the following questions:

1- How does tax minimisation generated by temporary differences affect firm value?
2- How does tax minimisation generated by permanent differences affect firm value?
3- How does tax minimisation generated by foreign statutory tax rate differences affect firm value?

Answering the above questions will expand our understanding of the components and their relationship with investors' valuation.

Question Two: How is the investors' evaluation of tax minimisation activities related to corporate governance characteristics in the UK large companies defined by FTSE 350 generally and FTSE 100 and FTSE 250 separately?
To answer this question two sub-questions have been set as following:

1- How do external and internal corporate governance mechanisms (proxied by institutional ownership and executive remuneration) affect the relationship between tax minimisation and firm value?
2- How do external and internal corporate governance measurements moderate the relationship between tax minimisation and firm value?

These questions are hypothesised in alternative outlines forms, which are elaborately explained in chapter 5.

1.4 Importance of the Research

This study is significant in several respects:

1- This study has made a methodological contribution by extending the research conducted by Abdul Wahab and Holland (2012) and utilising the framework of calculation tax minimisation components (book tax differences components) that used by Abdul Wahab and Holland (2015).
2- This study contributes to tax knowledge in the UK by contributing to the debate on tax minimisation and corporate governance.

3- This study contributes to investor's valuation by using two key performance measurements of firm value, namely Tobin's Q and ROA, the former represents market knowledge and the latter indicates a degree of asymmetry between investors and management.
4- This study sheds light for the benefit of different users; tax authorities, stakeholders and academics about the effectiveness of tax disclosure and the influence of corporate governance in the tax minimisation debate.

1.5 Research Methodology

This study is a positivist in nature and adopts a quantitative approach. The sample of this study is limited to FTSE 350 non-financial companies for the period from 2014 to 2016. The data is archival annual reports, which are hand- collected from companies' websites, DataStream and Minerva Analytics Company. Moreover, market capitalisation data is from London Stock Exchange website.

1.6 Structure of the Thesis

The balance of this thesis is structured for eight chapters as follows:

Chapter Two

This chapter reviews the literature and knowledge background concerning taxation and the generation of tax minimisation. This chapter is divided to 10 main parts; the first represents taxation background worldwide and in the UK, the second provides some information about the nature and dynamics of multinational companies, then the third, provides some insights about corporate tax in the UK sitting. Besides, presenting the significance of accounting and taxation knowledge with providing an understanding of the tax counting and financial accounting and the difference between them, which creates book-tax differences. This leads to understanding the different resources of book tax differences, which are tax minimisation and earnings management part of them. Finally, this chapter provides some tax minimisation background and finishes with a conclusion.

Chapter Three

This chapter discusses corporate governance and provides insights about corporate governance definition. It also discusses agency theory and presents the corporate governance mechanisms that linked to this research.

Chapter Four

This chapter provides information regarding different shareholders perspectives and its impact on firm value and it also represents different measures of firm value along with market efficiency theory. Finally, it provides a debate concerning the influences of tax minimisation decisions and corporate governance on firm value.

Chapter Five

This chapter considers research philosophy and formulating of hypotheses that are tested, as well as the model of the study is developed in detail. This study is a positivist in nature and adopts a quantitative approach. This study is objectivist and is considered to be value-free.

Chapter Six

Data collection and Variables Measurement are described in this chapter, also, the sample selection criteria are outlined and the sources of data from different database are mentioned.

Chapter Seven

After measuring independent and dependent variables along with control variables, this chapter includes data analysis and Findings. Descriptive statistics are provided with other analysis and robustness tests. The results of examining the relationship between tax minimisation and firm value are outlined and a discussion of the research findings and a review about the results of the data analysis are provided.

Chapter Eight

This chapter provides conclusions and discusses the knowledge contribution that this thesis makes to the literature on tax minimisation, firm value and corporate governance. This chapter represents the conclusion and a summary of the limitations and recommendations along with avenues for further research. Also, some practical implication of the findings are suggested and some reflection idea for new researchers are represented

1.7 The Research Conclusion and Contributions

This research examines the relationship between tax minimisation components and firm value in the UK setting with considering the impact of corporate

governance mechanisms on this relationship. It utilises a panel dataset of non-financial companies listed in FTSE 350 in general and FTSE 100 and FTSE 250 in separate for the period from 2014 to 2016. This study provides evidence that investors value tax minimisation components differently in different indices.

Tax minimisation components have no impact on firm value measures by Tobin's Q in both FTSE 350 and FTSE 100 when considers this relationship solely, which is consistent with Abdul Wahab and Holand (2012); however, permanent differences and overseas tax rate differences positively impact on Tobin's Q in FTSE 250, which is in line with Desai and Dharmapala (2006) who find a positive relationship between tax minimisation and firm value measured by Tobin's Q. In contrast, tax minimisation components have a positive impact on ROA in both FTSE 350 and FTSE 100, whilst, only permanent differences and temporary differences have a positive impact on ROA in FTSE 250.

Considering corporate governance mechanisms in the above relationship model did not change the results and only executive remuneration has a negative impact on the firm value measured by Tobin's Q in all indices and there is no significant impact of institutional ownership on the firm value measured by both Tobin's Q and ROA.

In contrast, when adding the interaction between tax minimisation components and corporate governance, the positive impact exists between institutional ownership and temporary tax differences in FTSE 350 and firm value measured by Tobin's Q, which explains that shareholders value tax minimisation strategy that underlying timing saving, as its less risky and, will revise in the future. Besides, the positive significant impact between both permanent and temporary tax differences in FTSE100 with both firm value measures, which indicates that shareholders trust tax minimisation strategy decisions by the managers, as these companies consider with well governance practices. However, those shareholders do not value permanent difference when it interacts with executive remuneration utilising both measures of firm value. Contradictory to FTSE 100, shareholders do not value permanent different in FTSE 250, which might indicate that the existence of information asymmetry leads to negatively value permanent tax

minimisation as it underlies a high level of risk and it might lead to managerial opportunism.

The contribution of this research is as follows:

1- This research provides evidence that tax minimisation components have different impact on firm value in the UK base context and extends the literature that examines the relationship between tax minimisation and firm value.
2- This is one of the first research (to the researcher's knowledge) that empirically examine the impact of different tax minimisation components on firm value measures by both Tobin's Q and ROA.
3- This research contributes to the knowledge by examining the relationship on FTSE350 collectively and further the examination on both FTSE 100 and FTSE 250 separately.
4- This research contributes to the agency perspective upon tax minimisation activities and predicts that the engagements in these activities depend on managers' attitude towards risks.
5- This research provides empirical evidence that investors value these activities when there is a high level of institutional ownership, however, they do not value these activities when there is a high level of executive remuneration.
6- This research contributes to the methodology by utilising a panel dataset of non-financial companies in FTSE 350 and split the sample to FTSE 100 and FTSE 250 separately. Besides, developing a model for the relationship between tax minimisation components, corporate governance mechanisms and firm value.
7- This research utilises two measures for firm value as dependent variable; Tobin's Q and ROA.

1.8 Limitation and Recommendation of Research

The limitations and recommendations for further research are provided as follows:

1- This research did not consider Brexit decision and its impact on stock markets prices, so further research that can understand this impact and examines the tax minimisation behaviour during Brexit and the transition

period after. Also, the period of coronavirus lockdown and its impact on tax minimisation as many businesses have been affected by those decisions. Such events might lead to aggressiveness on tax minimisation to prevent losses and might have either a positive or negative impact on firm value.

2- The generalisation of the FTSE 350 results on all the UK large companies could be constrained, however, the results of this research provide some lessons to learn and compare with other similar contexts whether in the UK or in other countries that share similar economics and corporate governances regulations such as European countries. Moreover, it would be beneficial to consider different sectors such as banking and financial companies and compare the results with this research results to identify the similarities and variances.

3- Although this research attempts to take a holistic approach in identifying the relationship between tax minimisation components and firm value with considering corporate governance as a moderating factor in FTSE 350 non-financial companies, the sample might not be completely representative. Hence, further research may extend the scope of the examination to include different sectors and indices.

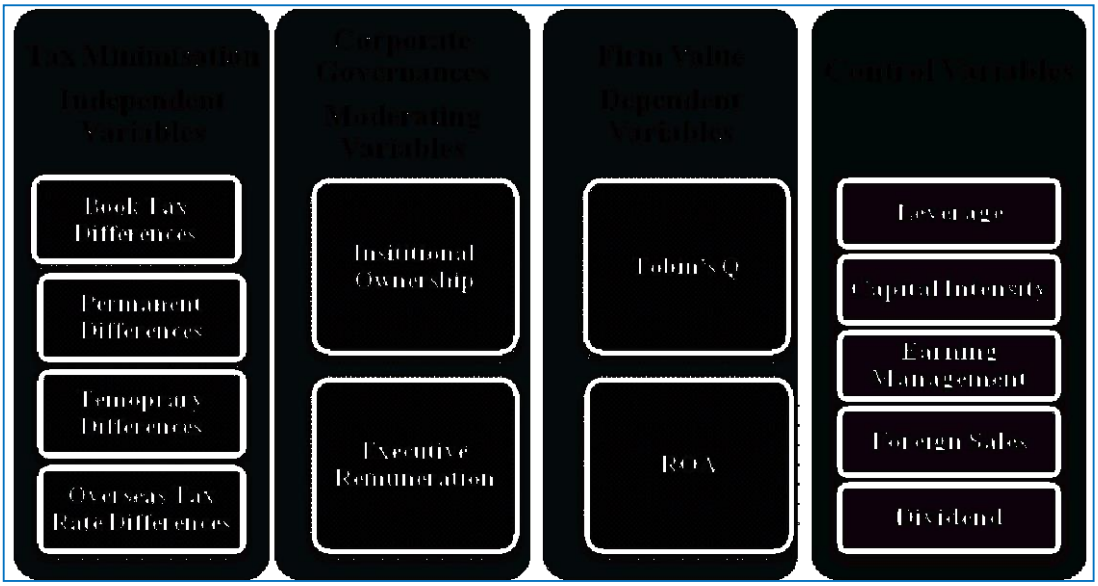
4- The theory and framework that underpins this research are agency theory and Scholes-Wolfson framework where the relationship is examined and analysed and the results are interpreted, which could be a limitation of the research. Further research may be required to adopt another theory or a combination of different theories and frameworks.

5- There are some issues could be in limiting factors in this research such the research relies upon secondary data in collecting the data of control variable that may disguise material matters of concern. However, verification upon sample crosschecks to data was made between data from the secondary and original sources to ensure their validity such as companies' annual report.

6- This research is a positivist in nature and adopted quantitative approach, further research is required to focus on this subject from different approaches such as qualitative approach or mixed approach to understand in depth human behaviour towards tax minimisation and grasp the characteristics of managers that might be more driven to engage in tax minimisation. In addition, a combination of quantitative and qualitative approaches could be more beneficial as can lead to understanding the relationship from different angles.

1.9 Research Paradigm

Figure 0-1: Research Paradigm



1.10 List of Author's Conference Presentations

Various working papers have been presented at different conferences and doctoral classes as following:

1- Tax minimisation on the UK MNCs, Annual PGR five minutes thesis presentation, Bournemouth University, UK, May 2016.

2- Tax minimisation, firm value, corporate governance: an evaluation of different methods on the UK MNCs, British accounting and finance association (BAFA SIG), Kingston University Business School, London, UK, December 2016.

3- An evaluation of the effect of Different Methods of Tax Minimisation on the UK MNCs, a poster at Bournemouth University the 9th PGR annual Conference, March 2017.

4- Tax Minimisation and firm value: An Evaluation of Different Methods (UK's Multinational Companies) BAFA annual Doctoral Conference, Herriot-Watt University Business School, Edinburgh, UK, April 2017.

5- Tax Minimisation and firm value: An Evaluation of Different Methods (UK's Multinational Companies) at Tax Research Network annual conference, hosted by Bournemouth University Business School, September 2017.

6- How does good governance affect the outcomes of corporate tax strategy? BAM corporate governance conference, hosted by the University of Southampton, June 2019.

1.11 Conclusion

This chapter describes the research background and explains the purpose and significance of the research. In addition, it provides an overview of the aims and objectives of the research and presents the formulation of the research questions. This is followed by the importance of the research and a brief description of the research methodology used in the study and an outline of the rest of the chapters of the thesis. Moreover, a discussion of the research findings and contributions are provided with a significant part of this research, limitations and recommendations are also provided with the research diagram. Finally, a list of conferences presentations attended by the researcher during her PhD journey is been stated. In the next chapter an overview of the UK accounting and taxation nature with highlighting tax minimisation knowledge.

CHAPTER TWO: ACCOUNTING AND TAXATION

2.1 Introduction

This chapter reviews the orientation to the extant knowledge concerning Taxation and corporation tax in the UK. It is structured and informed by the knowledge available around accounting and taxation literature, which fill the gaps in current taxation knowledge. This chapter represents the theoretical frameworks in relation to accounting and taxation in the UK setting. It begins with a background of taxation in the UK and provides an overview of the international company's nature and dynamic. It also discusses the UK taxation accounting system, presents the association between accounting and taxation and the needs, requirements and developments. Besides, it highlights the information knowledge about book tax differences and their components and resources. Finally, it provides an understanding of tax minimisation conducts by multinational companies.

2.2 Taxation Background

UK tax policy currently seeks to tighten the loopholes for the exploitation of the law, to make tax minimisation activities more difficult to engage in. Governments have established a variety of rules against the minimisation schemes of individual and companies (HM Treasury, 2017b). Since the announcement of the pre-budget report by the Chancellor of the Exchequer in 2007 for a review planned to discover how anti-avoidance legislation can encounter both the purpose of tax law simplicity and revenue protection (Tracey, 2009). The responses have been the formulation of new and different policies to tax avoidance law, which consequently has led to new legal formulations. This has effectively been a competition between the legislature and revenue authorities on one side, and the taxpayers encouraged and facilitated by the accounting companies, on the other side. The UK tax policymakers have responded to tax minimisation by creating anti-avoidance regulations to prevent those activities, and more recently a major piece of general anti-avoidance legislation (HMRC, 2014a). In addition, the gap between US and UK corporation tax rates makes the UK appear to be a tax haven. This view could be strenuously challenged, as 'tax havens' have zero to 5% tax

rates, so the UK is not a tax haven but there are considerable disparities in corporate tax rates among the G20 nations. The US corporate tax rate was a lot higher than those of other countries before the tax reform act that signed by Trump in 2017[2]. As a result, in 2013 a lot of US companies were considering ways to change their domicile to outside the US (OECD, 2013; Desai, 2014). Many US large companies have shifted their headquarters abroad through corporate inversion in the late 90s and early 20s, which allow companies to reincorporate to tax havens countries to reduce their tax liability (Webber, 2011; Desai, 2014). This movement called tax inversion, which involves changing position between parent company in the US and subsidiary in tax haven country in a way does not change the legal operations in both countries, however, changes the nationality of the headquarter (Desai, 2014). The White House (2012) policy changes are precisely designed to encourage companies not to change domicile and help in rebuilding the economy for the future. The government took a different approach making it costly for firms to use tax inversions or similar mechanisms to escape US corporate tax rules (The White House, 2016). A country's tax regime has a considerable effect on where global firms locate to retain more earnings and expand. Not only the rate of core corporate tax, but simple incentives like low tax rates for top organisations and enterprise zones can shift location decisions in favour of one country over another (Chan, 2014, Armstrong, 2014).

In 2014, a US-based baby clothing business called Destination Maternity sought to acquire the UK-based chain Mothercare, in a reverse takeover that is known as tax inversion, to escape a US corporate tax rate of around 40 percent. The UK was attractive for the US company, not just because Mothercare was a struggling business and thus inexpensive to buy, but also because among the G20 countries (a global forum of the largest economies in the world) the UK has one of the lowest rates of corporation tax. In addition, the tax incentives of the UK Treasury are linked to authentic investment in business and creating more jobs (HM Treasury, 2017a, Inman, 2014). The UK is an ever more attractive destination for

[2] It called Trump tax reform and was supported by congressional Republicans and Trump presidency. This tax cut has been signed by Trump in December 2017 and implemented in 2018, which leads to creating a single corporate tax rate of 21%. This change happened after the period of this research investigation.

international organisations in addition to being one of the most sophisticated as it is at the cutting edge of innovation and technology and is an attractive destination for investment in research and development compared to other countries such as Germany , France and China (May, T., et al., 2017).

This literature review has been structured firstly to analyse the related variables and then to give an outline of the existing proof linked to tax minimisation research, and to identify any gaps related to the knowledge.

2.3 The Nature and Dynamics of International Companies

Multinational corporations[3] (MNCs) are defined by Harrod (2009), Williams (2009), Muchlinski (2009) and Li (2011) as complex, multi-layered organisations operating and incorporated in several jurisdictions. A consequence of this definition is that such organisations are subject to a variety of different tax regimes, creating potential administrative and financial problems, but also providing paths to exploit for gain the tax differences between regimes.
Robbins and Stobaugh (1973, p:140) define MNCs from a profitability perspective as being:

> "*A system operating in a multiplicity of economic environments with varying tax rates, costs of money, and currency value*." (Robbins and Stobaugh, 1973, p:140).

They conclude that MNCs have exceptional possibilities due to an underlying capability to transfer funds – revenues and costs, assets and liabilities – between jurisdictions and thus exploit the benefits of a diversity of tax, capital markets, and currency relationships in a global context. Moreover, every company can concentrate on the specific financial practice that achieves their perceived advantages for their operating system and fulfils their development.

MNCs play a vital role, not only in the host country's economy, but also beyond that, to the wider world economy. The global gross domestic product GDP contribution of those companies can be much greater than the GDP of some

[3] Writers on corporations seem to use the terms 'firms', 'companies', 'enterprises' and 'corporations' almost interchangeably. This thesis does so as well, though it may qualify their use when it needs to discuss organisational forms other than the multinational corporation.

countries (Hansen, 2008). MNCs have traded successfully since the eighteenth and nineteenth centuries, with a dramatic subsequent diaspora after World War II, based upon technological advancement.

Almond et al. (2003) state that MNCs have played a significant role in the development of a corporate governance system that emphasises individual responsibility via a complying or explaining requirement, which provides unique strategies to flourish. Almond explains that the UK business framework has light touch regulation and liberal choices for MNCs, which makes it unique compared with other countries.

Every country has specific income tax policies, rules, and rates. A company's diversion strategy maybe to migrate the operational office to a country with a lower tax rate; this may negatively affect the local business and economy as a consequence of job losses, outsourcing and income inequality. Contractor (2016a) cites the US tax authority's permission of uncertainty on deferral of foreign earnings tax, if those revenues are not repatriated to the US, as one of the reasons underlying the removal of businesses abroad. Furthermore, MNCs take advantage of tax minimisation strategies like transferring price and property charges to a subsidiary. Recently, technology companies are increasingly utilising transfer price programs to minimise their taxable income. This is done by focusing on patent right, as it is a handier asset to shift than tangible assets (Campbell and Helleloid, 2016).

From the perspective of foreign direct investment (FDI) decisions, according to United Nations Conference on Trade and Development UNCTAD (2016) FDI flows have fluctuated massively over recent years, especially in some sectors such as utilities, telecommunications, business consulting, investment banking, , legal and accountancy services. This was due in large measure to MNCs engagement in mergers, acquisitions, and assets disposal. The UK, with an FDI above $72 billion at the end of the 1990s, was the largest recipient country in Europe.

MNCs have attributes that differ from those of domestic enterprises. For example, their critical mass is considered highly significant for economies where the main operations and largest number of employees are based and also for their scope in

industrialisation, and their product evolution. They are likely to take a pro-active stance concerning innovation and exploit opportunities globally. Furthermore, MNCs can gain privileged access to governments in acquiring advantageous conditions to safeguard local investments and as such minimise risk.

Habu (2016) defines MNCs as companies that have entities (parent, subsidiary) abroad. For the UK, it can be divided to two types: domestic multinationals, with headquarters in the UK, and foreign multinationals, headquartered abroad but listed on the London Stock Exchange (LSE). This classification will be considered in this research, taking in account some MNCs listed in LSE namely FTSE 350.

Although MNCs account for a small proportion of the number of business entities in the UK, they participate in approximately one-third of the UK's gross value added, i.e. those companies registered for VAT and/or PAYE (Office For National Statistics, 2016). GVA or gross value added is the scale of the increase in the economy's value because of goods and services production (Inger, 2014). It is measured at current basic prices, which involve the impact of inflation, except taxes on products. Furthermore, UK-based MNCs are clearly different from their counterparts in Germany and America in the extent to which they give preference to outsourcing from global markets for the facilities of production and services, which are located abroad (Mitchell, 2015).

2.4 Corporation Tax in the UK

Corporate tax, in United Kingdom is defined as the amount of money, which is levied on this country based on profits obtained by the companies established within the UK territories as well as the profits made by the overseas registered entities, which having the permanent establishments within the UK revolving powers (Corporation Tax Act, 2009, Practical Law Tax, 2020).

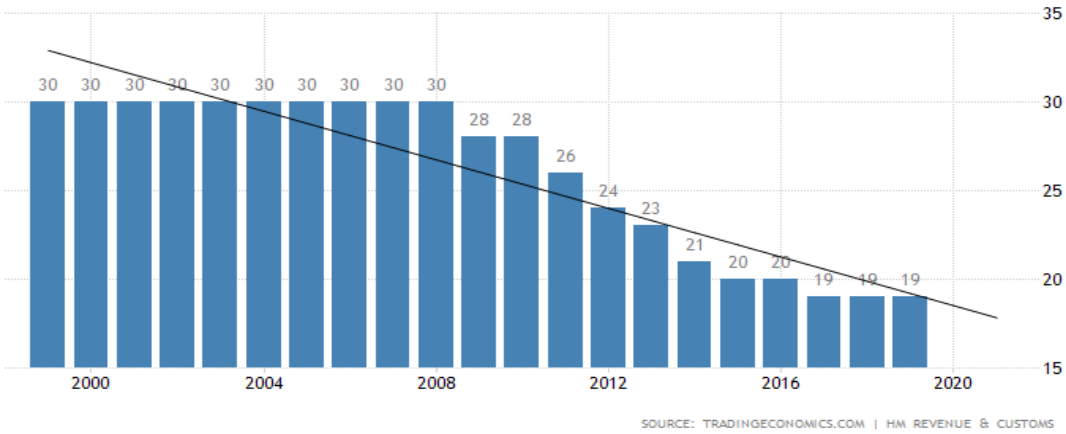
The government of United Kingdom was adopting the special method of taxation where the companies as well as the individual taxpayers are taxed based on the similar income rates for the period up to 1965. Thereafter, Finance Act 1965 introduced to stipulate effective modifications on the taxation strategy by embracing the corporation tax, which is majorly levied on different companies as

well as other associations (Finance Act 1965, Snape, 2011). The introduction of the corporation tax adopted its fundamental rules and structure from an income tax system. The amendments made on the tax system have led to the divergence of the rules and regulations governing both the corporate tax and income tax.

The UK tax legislation has been developed through the Tax Law Rewrite Project that was initiated by HMRC throughout 1997 and 2010, and which aims to make tax legislation more compatible and straightforward and make it easy to understand and apply. This project delivers first the Capital Allowances Act 2001, then focuses mainly on income tax as primary legislation and proceeded three basic regulations started with the Income Tax (Earnings and Pensions) Act 2003, then the Income Tax (Trading and Other Income) Act 2005 and finally finishing the project with the Income Tax Act (ITA) 2007 (Ipsos MORI, 2011). Thereafter, the project moved to focus on corporation tax and introduced the Corporation Tax Act (CTA) 2009, which enforced since the accounting period ending on or after 1st April 2009. This follows with two acts in 2010 namely: the Corporation Tax Act (CTA) 2010 and Taxation (International and Other Provisions) (TIOPA) Act 2010 (HMRC, 2010a, Snape, 2011).

During the period of Tax Law Rewrite up to 2008 corporate tax rate has been maintained at 30% then it has been reduced from 28% in 2009 to 19% in 2017 and it is maintained up to 2020, as it shown in the figure 2-1 below. This reduction is properly because of government decisions to adopt a competitive tax rate and attract foreign businesses and investments (HMRC, 2010b).

Figure 0-1: Corporate Tax Rate in the UK (1999-2020)



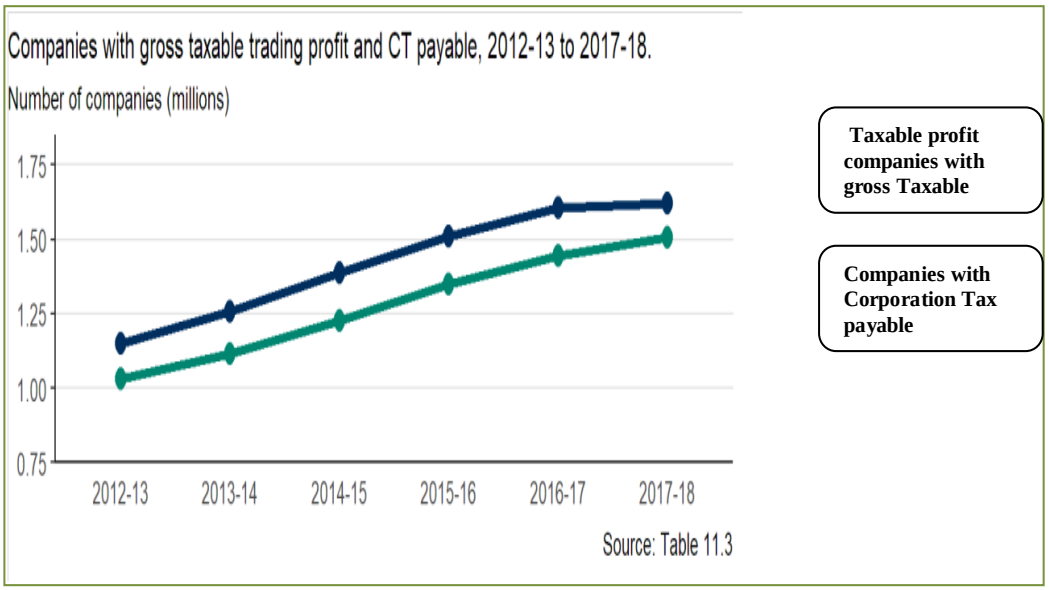
Source: Trading Economics.com/ HMRC

However, the HMRC corporate tax statistics table 11.3 titled: Corporation Tax: number of companies, income, allowances, tax liabilities and deductions[4]; shows that the effective tax rate (ETR) is increasing, despite the decreasing in corporate tax rate (HMRC, 2019).

The figure 2-2 shows the changes in chargeable taxable profit and tax liability. The percentage of companies with taxable profit and a tax liability has increased from 90% in 2017 to 93% 2018. Despite the reduction of corporation tax rate and the changes in taxable income, the tax liability remains stable over time due to the increase in corporation tax in other methods such as the limitation in bringing losses forward, reducing capital allowances for investment, a set of anti-avoidance measures and the introduction of the bank surcharge (Adam, 2019).

[4] HMRC publish this table on an annum based under the title: Corporation Tax: number of companies, income, allowances, tax liabilities and deductions; and available at: https://www.gov.uk/government/collections/analyses-of-corporation-tax-receipts-and-liabilities.

Figure 0-2: Companies with Gross Taxable Profit and Corporate Tax Payable, 2012-2018.



Source: HMRC. Corporation Tax Statistics table 11.3.

The reduction in corporate tax rate leads to increase corporate tax revenue as a percentage of gross domestic products as it is shown in figure 2-3 below, which confirms that tax rate cut did not cause any loss for the government revenue. However, there is still a tax gap that can be identified as the difference between tax due to tax authority and tax paid by companies.

The total tax gap due to HMRC was 7.9% (£35 billion) in 2005 o 2006, which has reduced to 6% (34 billion) in 2015 to 2016. Regard to corporate tax as a part of total tax the estimated total corporate tax gap awo to HMRC was 13.7% in 2005 to 2006 and reduced to 6.4% (3.3 billion) in 2015 to 2016 (HMRC, 2017). This gap still exists despite the reduction in corporate tax rate, which leads to question the companies morality and social responsibility towards society in paying their fair share of tax.

Figure 0-3: Corporate Tax gap between 2005 and 2016

Source: HMRC

2.4.1 Method of administering the charge

The authorities imposed for the collection of corporate tax should be formulated yearly by the UK Legislation as a way of activating this law. The financial acts are known to play a critical role related to the imposition of tax charges. Concerning the established companies in the United Kingdom, the accounting periods are the key factors for determining the mode of charges (HMRC, 2016d). Her Majesty Revenue and Customs (HMRC) is known to administer the corporate tax charge.

2.4.2 Assessment

The gross profits generated by the UK companies are the major parameters, which determine the amounts of corporate tax that can be levied on such companies. The HMRC is entrusted with the responsibility of raising the assessment on the company that would enhance the induction of corporate tax. The UK companies are mandated to deliver their reports to HMRC for effective assessment to be

conducted. In the year 1996, the self-assessments were introduced, which critically altered the companies' accounting periods (Financial Act 1998; Financial Act 2007).

At a date soon after, the self-assessments were embraced where the companies could actively engage themselves and take complete responsibility based on the assessment. However, the companies took full liabilities in case of any wrong assessment due to their recklessness or negligence (HMRC, 2016b).

2.4.3 The Payments and Rates

The corporate tax rate is usually determined annually at the beginning of the financial year, which starts for the UK companies from the 1st of April and end in the 31st of March the year after. For which the financial year could defer from accounting period for most companies, the corporate tax is calculated by splitting the accounting period to two periods to tackle the changes in corporate tax rate and ensure that companies pay a fair amount of their income tax liability. For instance, if the accounting period of the company begins in the 1st of June and ends in the 31st of May, so the calculation of tax liability will be by splitting the taxable income to two periods. The first period will begin from the 1st June and end to the 31st of March (to meet the end of the financial year) and will adopt the previous tax rate and the second period will begin from the 1st of April to the 31st of May (to meet the end of the accounting year) and will adopt the tax rate after the change.[5]

The budget in 2007 announced further decisions are taken in policy decision section to ensure stability and investments in the future in the UK. These decisions include of a large bundle of reforms to the corporate tax system, including the corporate tax rate reduction that activated from April 2008 (HM Treasury, 2007). The rate of corporate tax on the UK companies is mainly determined by the amounts of taxable income generated by companies. The UK government has embraced a fixed percentage rate of 19% since 2017. However, the current government aims at keeping the rates associated with corporate tax to

[5] For more details see: https://www.litrg.org.uk/tax-guides/self-employment/working-out-profits-losses-and-capital-allowance/how-do-i-work-out-my

be as low as possible. In addition, in line with the corporate tax rate reduction, the tax rate for small companies was increased to 21% from April 2008 to 2010 to prevent companies from integrating as small companies to pay lower than their actual tax liability. Furthermore, HMRC adopted a new terminology concerning small companies' rate namely small profits rate since April 2010, however, in April 2015 the corporate tax main rate becomes at 20% for both small profit and upper profit companies and then reduced to 19%, which becomes active from April 2017.

The rates of corporate tax for 2011 to 2020 financial years are depicted in the table given below;

Table 0-1: Rates of Corporate Tax for 2011 to 2020 financial years.

Rates of Corporate Tax for 2011 to 2020 Financial Years						
	2011	2012	2013	2014	2015-2016	2017-2020
Rates for small profits	20 %	20 %	20 %	20 %	-	-
Upper Limits for Small Profits	£300,000	£300,000	£300,000	£300,000	-	-
Marginal Relief Limits	£300,001 to £1,500,000	£300,001 to £1,500,000	£300,000 to £1,500,000	£300,001 to £1,500,000	-	-
Main Rate	26 %	24 %	23%	21 %	20%	19%

Source: HMRC & Company Bug website

2.4.4 Allowances Made on Corporate Tax Accounting and Tax

United Kingdom listed companies are required to obey the company law and are obliged to prepare financial statements with considering the generally accepted accounting principles for the period up to 2004, which is the period before adopting of the IRFS standard in 2005 in order to comply with the European law

requirements[6]. Regardless of the presence of the general accepted accounting principles (GAAP) in United Kingdom, which critically form the basic foundation for the tax assessment, there exist different reasons behind the variations of figures being utilised for tax assessment and commercial accounting. These include difficulties associated with the economic concepts definitions, commercial accounting purposes as well as appropriate administration strategies applied for tax system (Prest, 1978).

The principles associated with the commercial accounting as well as taxation may not be similar. Accounting usually involves the information preparation purposely for effective control as well as decision-making. The goal of taxation in UK is to promote revenue for the country, which can also be employed as a tool to measure the government social and economic policy (James, 2009). The accounting usually incorporates all the business transactions involving the large wide range of finances. On the other hand, the imposition of tax emphasises majorly on those transactions that normally affect the tax burden entry as well as depict the way such items are related to the calculations associated with the preparation of the tax documents.

2.5 Accounting for Taxation

The main goal of accounting in UK is to enhance the provision of information, which is relevant to decision-making. This information is meant for the interested parties such as tax authorities, shareholders and creditors so on. The accounting standards, which provide the effective guidelines on the transaction process, are developed to meet the accounting and taxation requirements. In addition, the concept on the taxation and accounting plays the critical role related to the income generation, which determines the rate of taxation in the country.

Moreover, the UK government can make viable decisions on different activities, which are agreed upon to be acceptable for commercial purposes and may not get involved in tax concessions (James, 2009). The UK government has embraced the

[6] The European Law requires all European listed companies including the UK companies to prepare their reports under international Financial Reporting Standards (IFRSs), however, unlisted companies can adopt either the UK GAAP or IFRSs.

special tax treatment, which involves certain expenses. Based on the business reasons, it is quite essential to take accounts for every cost being incurred when generating revenue. Although certain expenses are not deductible for tax purpose such as customers entertaining and gifts, it can be deductible if the amount is trivial and for advertising purpose, which due to government's strategy to prevent tax minimisation. Nevertheless, the distinction between taxation and accounting is considered to be more important than adjustments for an acceptable number for income (James, 2009).

2.5.1 Accounting and Tax Evaluation

The financial accounting income and taxable income are two different concepts; however, they are interconnected (Lamb, 1996). Apart from the existing uncertainties, the accounting and tax have been considered to have progressive development in the UK over decades. Sir Thomas Bingham [7] had provided adequate information on the accepted principles related to the commercial accountancy and spotlight on the accepted accounting principle and the actual accounting practice regards computing taxable income in cases concerning the implementation of GAAP, at page 123B of Threlfall v Jones and Gallagher v Jones [1983] 66TC77 (HMRC., 2013). Hi states that:

" I find it hard to understand how any judge-made rule could override the application of general accepted rule of commercial accountany, which (a) applied to the situation in question, (b) was not one of two or more rules applicable to the situation in question and (c) was not shown to be inconsistent with the true facts or otherwise inapt to determine the true profits or losses of the business."

This approach might be suitable in general to set the facts of the case, however, the law will dominate if there is a contrary legal provision or there were suspansions about those facts (James, 2009).

Moreover, taxation was reformed and modified, according to the study conducted by James (2002); it can be observed that the continuous pressure against the set reform and its corresponding outcomes are being experienced in the country.

[7] Former president of the supreme court of the UK, who is known as the master of the rolls and the greatest judge of his generation.

There are many methods can be used for developing the tax system such as Force-field analysis approach that developed from Lewin (1951), which is an important contribution to various fields. This approach provides a framework that can help in studying the factors (forces) that impact any situation and can be adopted for social and organisational change included different tax systems (Burnes, 2020). Individuals may have differing views based on the tax systems development and consider it as a rational reform process in changing situations. This optimistic technique usually has the drawback in the sense that the approach cannot be reflected easily in the real tax reform process as well as not taking in consideration the complex array involving the development of tax systems and the characteristics of the political procedures (James and Nobes 2015; Lymer and Hasseldine, 2002).

2.5.2 Administrative Effectiveness

In the United Kingdom, Taxation tends to depend on transaction-based accounting rules, which differs from accruals-based method adopted in measuring accounting income in traditional accounting. Moreover, the tax system requires being much dependent on the verifiable and precise transactions whereas good financial accounting is expected to be subjective to some important aspects of taxation (Whittington, 1995, James, 2009).

Both taxation and traditional accounting demand accuracy; however, in considering administrative effectiveness, it is significant for a tax system in which tax liability depends on precise variablesfor instance, pension allowance contributions for tax made based on contributions. Moreover, depreciation treatment in the UK can be used to explain the different purposes for both taxation and accounting and the necessity for administrative effectiveness taxation. According to accounting principles, depreciation should be charged and disclosed; however, in the UK depreciation is considered under the capital allowance system and might not be deducted when calculating taxable income. Capital allowances adopt the shape of accelerated depreciation system to motivate investment in particular fixed assets. In addition, depreciation can be biased and subjective when it calculated by accountants and may be affected by the intention of tax reduction (James, 2009).

2.5.3 Tax Accounting and Financial Accounting

This section represents the background details concerning the UK tax accounting framework. In addition, it provides information about the link between income tax system and financial accounting and shows how the tax report and accounting report are linked.

Tax accounting refers to the process of preparing financial statements and calculating corporate taxable income in order to identify corporate tax income due to the tax authority. Therefore, companies prepare two types of reports to meet different specific objectives namely accounting income and taxable income. The relationship between tax accounting and financial accounting can be complicated as acounting and tax systems are developed in different directions, which present the specific structure of the traditional tax regulation setting in the UK (Lamb et al., 1998). This complexity increases as a result of both the advanced tax system being placed over the old and very complicated framework (Muray and Small, 1995; Lamb et al., 1998; James, 2009, Brown and Oats, 2020).

All listed companies in the UK have been required by the European Union (EU) to prepare their consolidated financial reports using international financial reporting standards (IFRS) since 2005 through IAS regulation (Pacter, 2017). It is only mandatory for group companies listed in the financial market, for the accounting comparability and providing a higher information quality purpose across different jurisdictions (Horton et al., 2013). However, based on Companies Act 2006, parent companies and subsidiaries have the option to adopt either IFRS or the UK GAAP for the legitimate financial report.

2.5.3.1 Tax Accounting

The current firms as well as tax environment have been recognised to progressively become complex, which is created by increased globalisation and due to the introduction of the new form of tax system flowing from the introduction of Corporation Tax Act 2009 . Besides, tax accounting could be considered as the most complicated part of the financial reports (Brown and Oats, 2020). This is as a result of recording tax payments and reimbursements (from

current and previous transactions) as deferred tax assets and liabilities to design the current financial performance in an accurate manner (Graham et al., 2012). In addition, this complexity could be due to the income calculation, as it is prepared on an annual based for two different objectives; tax return and financial reports. Companies are obliged to prepare their taxable income according to the tax law and the amount of tax payment is determined by the taxable income calculated.

In contrast, companies are also responsible for providing the users of financial statements with the financial information that help them in their rational decision regards to firm's valuation. The conceptual framework of financial reporting originally evolved in the USA and then redeveloped by the UK financial reporting council (FRC) and the international accounting standard board (IASB). The general aim of financial reporting states by IASB (2018, para 1.2) as:

> *"To provide financial information about the reporting entity that is useful to existing and potential investors, lenders and other creditors in making decisions about providing resources to the entity. Those decisions involve buying, selling or holding equity and debt instruments, and providing or settling loans and other forms of credit"*

Thus, the main purpose of IFRS is to improve the transparency and comparability of the information included in the financial reports at an international scale. Many studies provide evidence that the adoption of IFRS enhances the comparability and equality of the information reported in the financial reports (Ball, 2006; Byard et al., 2011; Horton et al., 2013). However, the adoption and implementation of IFRS could not always lead to standardise accounting practices, as there might be significant differences between countries, which could be covered by a veneer of uniformity and lead to inconsistent financial reporting (James, 2009; Ball, 2006)

In addition, the IFRS support both principle-based and accruals-based accounting standard approaches, which allow for more flexibility for managers in preparing financial reports. The principle-based policy obliges mangers to make decisions rather than provide elaborated rules and standard implementation instruction in accounting transactions process, which could lead to managers' opportunism in reporting earnings (Benston et al., 2006). Besides, the accrual-based method enables managers to provide reliable estimates and assumptions concerning future

cash flow in the financial analysis and reporting processes, which can provide managers with freedom to manager and manipulate earnings of (Lang, et al. 2010; Cohen and Zarowin, 2010; Capkun et al., 2012).

This complexity also, could lead to increasing the voluntary disclosure by manager to reduce the negative effects of complexity on the information reported in financial statement (Guay et al., 2016). In this regard, the UK departments associated with the taxation are being pressurised in attempting to become more efficient in administering the tax services.

The Government of the United Kingdom has proposed that the nature of tax returns is submitted based on firms characteristic and the VAT registration. The UK companies usually seek experienced tax advisers from accounting firms, who can play a major role in providing the guidelines related to the tax calculations. The tax advisers also determine the future tax to be paid as well as providing viable techniques, which are to be employed when paying the tax to the tax authority. From accounting companies perspective, the fee of tax advisory services provided by the UK accounting companies are considered as the most important financial source of fee income for those companies after the fee of audit services (Accountancy, 2007; Abdul Wahab and Holland, 2012). Thus, it might be sensible to consider that tax minimisation service includes an important part of the fee income (Abdul Wahab and Holland, 2012).

The income taxes implement IAS 12 applied to the annual periods at or after the beginning of January 1998, called the comprehensive balance sheet method for income taxes accounting (Deloitte, 2020). This method is divided into two elements, the current tax method and deferred tax method. The current tax can be defined as the amount of tax expected to be payable (receivable) to the tax authority in regard to taxable income (tax loss) for both current and past periods, with including the settlements of previous periods. Whilst, deferred tax is the income tax should be paid or received in regard to taxable income or tax loss for the next periods reporting, occurring from previous periods transactions (IAS 12, para 5). Therefore, the tax expenses that appear in financial statements comprise

both current and future consequences that result from events and transactions of current period (Hanlon, 2003; Brouwer and Naarding, 2018).

The accounting for current tax is reasonably simple, which can be identified by the current taxable income estimated by modifying the accounting income reported in financial statements to meet the requirements of tax law. The unpaid current tax for both current and previous periods is recognised as tax liability, whereas, the overpayment of current tax for both current and previous periods is identified as tax assets (IAS 12, para 12; FRS 16, para 5; Telford and Oats, 2014).

Deferred tax accounting is a complex part of the tax accounting method (Harumova, 2016). It has been the issue of debate and challenges amongst various parties of interest, such as policymakers, managers, professionals and academics over the calculation methods, for example, liability method and deferred method. The liability method calculates the deferred tax amount based on the tax rates anticipated to be in effect when reversing temporary differences. Whereas, deferred method is known as an income statement method, which focuses on properly coincide revenues with expenses in the periods of the temporary differences generated (Bhattacharyya, 2016).

The IFRIC 23 has been added to the IFRS interpretations committee scheme, since 2014, then issued in 2017[8]. This is to clarify the treatments and measurements for uncertainties in IAS 12. It explains the recognitions and measurements of current and deferred income tax assets and liabilities if there are uncertainties exist over a tax treatment, which refers to any applied tax treatment by company that involves uncertainty about whether the tax authority will accept this approach or not. IFRIC 23 applies to all parts of income tax accounting that involve any uncertainty related to an item treatment, including taxable profit (tax loss), tax bases (of assets and liabilities), unused tax credits, unused tax losses and tax rates (Deloitte, 2019).

[8] IFRIC is effective for the accounting periods beginning on or after the 1st of January 2019. Earlier voluntary application is allowed. The sample of this study is for the period from 20014 to 2016, which is before the issue of this standard.

2.5.3.2 Corporation Tax and Tax Accounting

In the case of the business firms having corporate tax liabilities, an individual company is expected to deliver a company tax return to the HMRC, especially at the end of the individual accounting period. Upon the submission of the company tax return, it is essentially required to engage in certain calculations related to the following;

- Determining the profits or loss, which are made in relation to the corporate tax.
- Determining the amount needed to be paid for the concerned individual corporate tax.

Under the IAS 12, large companies are required to include the result of current income tax in financial statements and identify the payable and refundable amounts to HMRC regards the current period taxable profit. Thus, next period tax is identified regards to the difference between the assets and liabilities carrying amount for the aim of tax and the assets and liabilities carrying amount for the aim of accounting. This difference between the assets and liabilities carrying amount for the different aims makes the assets reclamation and liabilities adjustment, which could lead to future tax refunds or tax payments (Brouwer and Naarding, 2018).

According to IFRS, companies are required to provide complete, neutral, and free of error picture of their position and include all the substantial information for the users to gain an understanding of the phenomenon being pictured. Tax accounting approach underlying IAS 12 can be justified as it seeks to comprehensively exhibit the company's current and future positions and endeavours to decrease the level of managerial opportunism through deferred tax provision. However, empirical evidence suggests that the comprehensive quality of IAS 12[9] provides incomplete value relevant information to users since there is a poor relationship between deferred tax and future tax cash flows (Brouwer and Naarding, 2018).
The process of preparing taxable income makes accounting for taxable income a challenging part of the financial reporting (Graham et al., 2012). This complexity

[9] The comprehensive quality requires deferred tax liabilities to be identified with considering all temporary tax differences, with some certain exemptions.

due to taxable income and accounting income are required for different authorities and contributed to different objectives namely taxation and financial annual reports (Porcano and Tran, 1998).

2.5.3.3 Financial Accounting

Financial accounting involves the accounting field concerning; analysis of financial transactions, making reports and provide the financial information for various users, which help in decision-making (Nobes and Parker, 2008). The international financial reporting standards (IFRS) usually govern the financial accounting in large companies within the EU countries. They consider as the standard frameworks that provide the required guidelines and help in improving the communication mechanisms of the financial information for financial accounting applied at an international level. In addition, the financial accounting usually facilitates the taxation-levied method within the country. This important approach enhances the preparation of financial documents that provide guidelines towards imposing the taxes on the taxpayers (Chew and Parkinson, 2013).

The preparation of accounting information is the main purpose of financial accounting. This financial information is prepared purposely for those who might not get direct involvements in the running of certain organisations. This greatly promotes good decision-making processes by organisational managers and other stakeholders, who are actively involved in making different judgments on the daily running of an organisation (Malhotra and Poteau, 2016). This financial information should be published by preparing the financial statements, which are known to be taken up by internal and external users and relevant stakeholders with the use of historic accounting information. The preparation of the financial statements required complying with qualities as below.

- Relevance- The financial accounting is supposed to provide financial information that impacts on decision-making. This underlies both predicted and confirmed values that any excluding of them could affect the economic decision of the decision-maker.
- Reliability- it should not contain the uncertainties, such as bias. The organisational managers should always rely upon it, as the tool for decision-making. Bias free information is usually reliable in the

organisation and users can rely on it, which prevent organisation from concealing the substance of its position (Freedman, 2004; Nobes and Parker, 2008).

2.5.3.4 Financial Reporting

The UK government has established effective bodies that carry out comprehensive implementations related to the tax systems in the country such as Financial Reporting Council (FRC) which responsible for establishing the UK accounting standards. In addition, FRC comprises two essential bodies, which are Financial Reporting Review Panel (FRRP) that ensure the enforcement of accounting standards and the Accounting Standard Board (ASB) that has a primary role in influencing the adoption and development of international financial reporting standard (FRC, 2008).

The framework associated with the financial reporting has contributed greatly towards imposing the viable rules and regulations, which facilitate the collection of taxes from different sectors. In the year 2002, the European Union (EU) was able to embrace a special type of IAS Rules and Regulations that provide the required directions. With regard to this, the licensed companies such as the insurance sector as well as banking companies are required to adhere to such regulations while accomplishing different activities. In accordance with the stipulated rules, they should annually prepare detailed financial statements and submit them to the relevant authorities for financial evaluation.

These IAS Regulations are applicable to all the European Member States. Since the United Kingdom is, at the time of writing, amongst the European member states, it requires following such stipulated guidelines. This means that all companies should periodically submit their financial documents under the IAS regulations. However, those companies that are not subjected to IAS Rules are expected to undertake their duties under the Listing Rules and Laws for the tax contributions. The Regulations associated with European IAS grants the member states with the viable opportunities to exercise the utilisation of other laws associated with taxations (EU Commission, 219).

The UK companies which operate under specialised sectors or industries are also required to employ the *specific Statement of Recommended Practice* in accordance with the *Financial Reporting Standards* (Deloitte, 2020). Different financial reporting standards have been implemented in the UK. For instance, FRS 100 spells out the appropriate financial reporting model, which provides the essential entities required for the preparation of financial statements on the basis of accounting standards, legislation and regulations that are more applicable in Ireland Republican and United Kingdom. In addition, a new GAAP has been replaced on the old GAAP for small companies including of financial reporting standards FRS 100 to FRS 105 since 2015. In which, FRS 101 can lead to the accomplishments of the framework associated with reduced disclosure that allows most parents with their subsidiaries to employ bases for their respective financial statements (James, 2017).

2.5.3.5 Needs, Requirement and Development

As mentioned previously, the taxable income and accounting income are intended to achieve different purpose for different audience, tax systems and capital market. Whilst financial accounting obliges to achieve the requirement of relevance and reliability in preparing financial information (Freedman, 2004), the tax system is intended to achieve specific goals. These goals are mainly raising government revenue with considers the balance between equity and efficiency, whereas, keeping tax compliance and administrative cost under scrutiny and consideration (OECD, 2013). Besides, the tax system is intended to lead to control of economic activities, through incentivise and disincentivise particular activities (Freeman, 2004). Hanlon and Heitzman (2010: 130) state that:

"Tax rules are written under a much more political process. Lawmakers can enact tax rules to raise revenue, encourage or discourage certain activities, and attempt to stimulate the economy"

In addition, the difference between tax accounting and financial accounting can also, includes the development of each system independently over time, which leads to changing the income measurement and definition to serve different

purposes for each system. There is still a continuous need for a systematic approach to evaluating international differences in the relationship between the tax system and financial reporting. This issue is due to both financial reporting standards and generally accepted accounting principles are preceded by rules and methods of taxable income measurement and recognition (Alley and James, 2005; Lamb, 1996). The rapid development in both accounting and taxation fields require a review of tax regulation continually to verify that the legislations meet thier objectives (Alley and James, 2005).

Financial accounting is based on principles that focuses on accommodating the users' needs for valuation and estimation of particular information in the financial statements, whereas, taxation is historical and requires explicit methods to compute tax liability (Alley and James, 2005; Freedman, 2004). Therefore, tax regulations focus on past information mainly expenditure, which allow less scope for discretion and accruals information. Both types of information serve different needs, while accruals based approach utilises in calculating book income, the cash-based approach is adopted for tax regulation (Logan, 2011). Thus, accruls based focuses on the non-cash outcomes of the transaction and records the transaction when it incures not when the cash is received or paid, however, the cash based approach for taxable income focus on the cash incident of the transaction (PWC, 2011).

The financial reporting conceptual framework states that the purpose of financial reporting is to provide financial information to investors, lenders and creditors that help them in making a rational decision about whether providing resources to the corporation (International Accounting Standards Board, 2013). This assumes that the main needs for the information users are to know the corporate resources to evaluate the future cash flow and assess the effectiveness and efficiency of managers in utilising these resources. This leads to concentrate more on fair value (market) (Power, 2010), however, the fair value depends on models built on assumption, where there is no market prices, which could lead to estimation errors and increase the tendency of manipulation in financial reports (Landsman, 2007). In addition, firm value cannot be the foundation to measure tax liability as a result of market prices volatility (Sikka, 2017; Freedman, 2004). As a result,

contemporary financial reporting standards do not allow collecting tax, although components of accounting keep affecting how both taxable profit and liabilities are calculated (Sikka, 2017).

As a consequence, accounting standards are evolved to meet the needs of investors and creditors and neglect tax needs in measuring taxable income and the difference will keep continue for the future. Therefore, the development is needed to reduce the cost of aligning both financial reports and taxation, which requiring a huge amendment to the conceptual framework for financial report and focus more on stakeholders requirements (Sikka, 2017, International Accounting Standards Board, 2013).

2.5.4 Book Tax Differences

Book tax differences result from the fact that the figures for firms' accounting income reported in financial statement differ from taxable income that reflects the actual payment of tax liability established in the tax return. This difference in both reports (financial statement and tax return) could be as a result of three factors; normal differences between the reports, earnings management or tax minimisation strategy. These three factors are considered below as the book tax differences sources. This section highlights the book tax differences components and discusses the book tax differences sources.

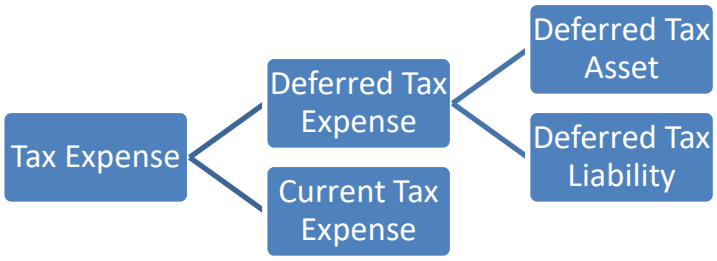
2.5.4.1 Book Tax Differences Components

The different purposes of financial accounting and tax accounting can be reflected in a considerable difference in dealing with a transaction. For example, the tax system treats the deduction as a deferred until it occurred then treats it as certain and fixed, however, financial accounting treats a liability as accrued when it can be estimated. On the contrary, the tax system perceives the income as recognised in the current period under the claim of right, ability to pay and control reasons, whereas, financial accounting could defer accrual to the end of the year to match the revenue with expenses (Sikka, 2017).

Since January 2005, the tax system required all listed companies in European countries to prepare the consolidated financial reports based on IFRS and publish

these reports to all users (ICAEW, 2018). This requirement leads the UK companies listed on London Stock Exchange (LSE) to adopt IFRS in preparing their consolidated financial statements and obey the revenue law and International Accounting Standard IAS 12[10] in preparing their tax return, which included the tax liability owed to HMRC. The difference between the purposes of both reports (financial report and tax report) creates book tax differences, which due to treating the same transaction in both reports in a different way leads to different impacts on income (Plesko, 2004; Scholes et al., 1992). The diagram below shows tax expense and its components under IAS 12 income taxes as follows:

Figure 0-4: IAS 12 income Taxes



Source: The Author

Tax expense comprises current and deferred tax expenses[11]. Deferred tax expense includes two components; deferred tax assets, which is the amount receivable in the future due to deductible temporary differences, whereas, the deferred tax liability is the amount payable in the future by the company due to taxable temporary differences.

Book tax differences comprise two components namely temporary differences (TDs) and permanent differences (PDs) (Abdul Wahab and Holland, 2015; Sonnier et al., 2012). In addition, most of income and deduction accounts are addressed identically for both financial report and tax objectives. However, accounts that are addressed differently are recognised as book tax differences and categorised as temporary and permanent differences. The complexity in

[10] Refers to comprehensive balance sheet method, which means considering deferred taxes in calculating income taxes with regard to temporary differences between the assets or liabilities carrying amount in both financial statement and tax account (IAS 12, para 5).
[11] All online databases do not distinguish between current and deferred tax expense, so, permanent and temporary tax differences data are hand collected and calculated.

accounting for income tax occurs due to the existence of both temporary and permanent differences between both financial statement and taxable income (Sonnier et al., 2012, Comprix et al., 2011).

2.5.4.2 Permanent Differences

Permanent differences are items that are considered as permanent in nature, do not arise from timing issues and do not generate deferred tax assets or liabilities (Graham et al., 2012). Scholes et al., (1992) state that permanent differences originate from items that are included in accounting income or taxable income. Permanent tax differences lead to the creation of a difference between effective tax rate and statutory tax rate.

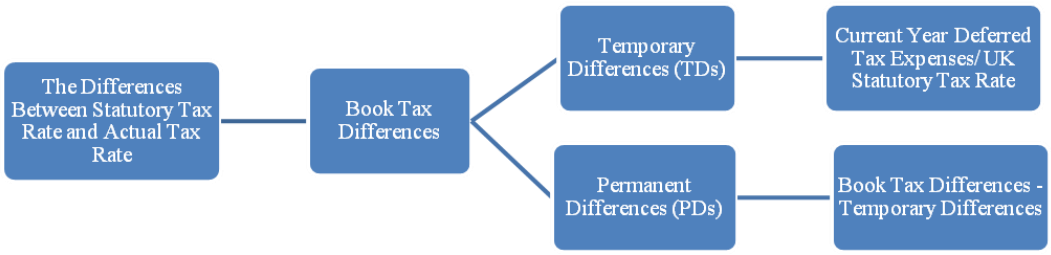
The information concerning permanent tax differences is provided on the tax footnotes in the financial statement via a reconciliation section, which provides reconciliation of effective tax rate and actual statutory tax rate (Graham et al., 2012). The reconciliation is required by IAS 12 income tax principles and includes both permanent and temporary difference that results from book tax differences. These differences show the difference between items that affect tax expense but not taxable income (IASB, 2018). An example of permanent difference can be explained through transfer price, in which companies are able to shift income from high tax rate countries to low tax rate countries to decrease their overall tax liabilities related to their overall pre-tax income and report an increase of permanent difference in the financial reports (Frank et al., 2009).

2.5.4.3 Temporary Differences

Temporary differences refer to the differences in assets and liabilities in taxable income and accounting income, which are due to items recognised at a different time for book and tax target (Sonnier et al., 2012). Temporary differences refer to timing differences and most of them relate to rule difference between financial and tax reports (Balakrishnan, et al., 2019). Sonnier et al., (2012) state that temporary differences might occur from adopting a different method for depreciation, in which companies follow the straight-line method and tax system, requires the adoption of acceleration methods. Hence, the amount of depreciation

expense will be higher in the financial statement for the accounting purpose than in the tax report for the tax purpose that results in creating a deferred tax liability. However, a warranty expense occurs for accounting purpose as a proportion of sales on historical expense and expected claim basis, nevertheless, for tax purpose, it is not allowed to be deducted until actually paid. Moreover, the different dealing of bad debts by adopting allowance approach for accounting purpose and write-off approach for tax purpose generate temporary differences. The figure below explains the different components of book tax differences.

Figure 0-5: Book tax differences components explanation



2.6 Book Tax Differences Sources

2.6.1 Earnings Management

Earnings management is the managers' incentives to provide the best possible picture of performance to achieve a particular target. This can be done through preventing the report of declined or negative earnings to beating analysts' forecasts. On the contrast, this target could be for a tax minimisation purpose, by reducing the amount of income reported in the financial statement to prevent paying a high level of tax. Therefore, the manager might take advantage of the discretion choice, which is acceptable in financial accounting principle to make up the financial report and provide the users with misleading information (Sohn, 2016). As investors' value more firms that record a higher earning and achieve the analysts' expectation than firms that miss the analysts' expectation (Brown and Caylor, 2005).

In addition, managers have an incentive to engage in earnings management, as their compensation is often related to their performance that in turn is reflected in corporate earnings (Degeorge et al, 1999). Moreover, the incentives in engaging in earnings management amongst public companies are high, as companies tend to improve after-tax earnings and achieve a particular earning. Previous research conducted on earnings management and conformity across countries, suggests mixed results (Atwood et al., 2010; Lang et al., 2009; Leuz et al., 2003), concerning the influence of book-tax conformity.

In the existing literature, earnings management is interchangeably linked to earnings quality; for instance, Atwood et al. (2010), suggest that high levels of conformity lead to lower earnings constancy, lower association with future cash flows and hence such actions could reduce earnings quality. Besides, Lang et al. (2009) provide evidence that companies have a lower level of income smoothing engagement in a country with a lower level of book-tax conformity, also, Blaylock et al. (2012) confirm that higher level of book-tax conformity is significantly associated with higher earnings management. However, Leuz et al, (2003) did not find any relationship between book tax conformity and earnings management.
Increasing compliance with the rule is likely to lead to decreased managerial manipulation of financial reports and reduced earnings management (Blaylock et al., 2012; Desai, 2005, Whitaker, 2005).

In summary, book tax differences include a source of earnings management as the changes in income tax expenses that could lead to changes in after tax income. Therefore, the manager exploits this opportunity to engage in earnings management to achieve earnings figures and beating the market target, which could result in ambiguity in the financial information reported in the annual report resulting in information asymmetry between managers and shareholders.

2.6.2 Tax Minimisation

This section examines the literature linked to tax minimisation activities. It commences with a review of the conceptual framework of tax minimisation and

the corporate structure that is usually adopted in analysing various concepts concerning tax minimisation. In addition, this section highlights the underling theory of tax minimisation research and reviews the benefit and cost of engaging in such activities.

2.6.2.1 Tax Minimisation Definition

Tax minimisation is defined by HMRC as the act of bending the rules of the tax system to gain a tax benefit that Parliament never intended (HMRC, 2016b). This definition includes all activities that taxpayers engage in to reduce their tax liabilities by the entitlement of legitimately managing their financial activities and business events to benefit from the available tax resources.

This activity of minimising tax involves utilising allowances, reliefs, both expenditure deductions and exemptions and all other methods of tax exceptions. In general, the tax minimisation perceives as the management axis that confirms the designing of tax strategies and targets, whereas, tax minimisation management can be the circular that interprets tax strategies and targets to anticipated results (Agrawal, 2007).

Tax minimisation behaviour by taxpayers depends on issues such as tax rates, the expectation of deduction in case of engaging in tax reduction, the likelihood of detection, penalties, and the level of risk- aversion involved (Holland, Lindop, Zainudin, 2016, Hanlon, and Heitzman, 2010; Allingham and Sandmo, 1972). Recent research focuses on the psychological impact on taxpayer behaviour towards tax compliance and explains the response in term of framing (McCaffery and Baron, 2004) and accountability (Sanders, et al, 2008). On the other hand, alternative research suggests that taxpayer compliance behaviour is driven mainly by social factors (Jimenez and Iyer, 2016; Torgler, 2007).

In addition, business tax minimisation strategy can be seen as a bundle of complicated activities, due to the separation between the two parties, the principal as the business owner and the agent as a manager (Sartori, 2008; Slemrod, 2004).

2.6.2.2 The Legitimacy of Tax Minimisation

Tax minimisation effectiveness is considered as the approach that leads towards the achievement of shareholders wealth; therefore, businesses are obliged to not engage in this mechanism mainly for reducing tax liability (Scholes et al, 2016). Thus, tax minimisation could be deemed as the legitimate actions that taxpayers can take to achieve tax reduction whist making the required disclosures of income, profit and gains rising, but without engaging in criminal activity (Miller and Oats, 2016). Nevertheless, these actions might not lead to achieving the purpose of effectively minimising tax liability.

The legitimacy of tax minimising is driven from the legal facts of Duke of Westminster v IRC (1936). The statement of the judge, Lord Tomlin, below leaves space in the law for the principle that he stated:

> *"Every man is entitled, if he can, to order his affairs so that the tax attaching under the appropriate Acts is less than it otherwise would be. If he succeeds in ordering them so as to secure this result, then, however unappreciative the Commissioners of Inland Revenue or his fellow tax-payers may be of his ingenuity, he cannot be compelled to pay an increased tax"* (Tiley and Loutzenhiser, 2012).

Whilst tax minimisation could be considered a legitimate activity when it relates for example to municipal bond investment on one side, it might also come in a continuance illegal tax aggressiveness and evasion on another side, What may be seen as being in the middle can be perceived as a tax minimisation strategy depends on the aggressiveness level in reducing tax liability (Holland and Heitzman, 2010). However, tax minimisation is an ambiguous term as there is no clear definition to distinguish between tax minimisation and evasion. Individuals can and do have different opinions when it comes to perceiving the degree of aggressiveness in a particular transaction (Oats and Tuck, 2019). Therefore, there is ambiguity involved in this activity, which makes distinguishing between them difficult.

The literature refers to tax minimisation utilising some glossaries such as *planning, avoidance, minimisation, management*, whereas, references to the illegal activities

use words such as *aggressiveness, sheltering, evasion and noncompliance* (Holland and Heitzman, 2010).

Tax minimisation involves making adequate a legitimate concerning the financial status with the aim of reducing the liabilities involved in the course of taxation conducted in a given country (Tiley, 2004). In other words, it is an important entitlement offered to the taxpayers, purposely to reduce the liability, which can be encountered during taxation. It is usually considered as the formal and legal guidelines that need to be adhered by every taxpayer in order to ensure that the benefits associated with tax savings are achieved at the minimum tax liability. However, the tax minimisation activities become ineffective; especially the concerned authority issues taxpayers with strict rules related to the approaches to be used for tax minimisation. For instance, the legal facts that are drawn by Furniss v. Dawson (1984), which clearly describes how a tax authority presented some challenges concerning tax minimisation activities.

For full appreciation of the idea related to tax minimisation in the society, tax researchers previously considered the issue of tax evasion as well as tax minimisation as key parameters in the continuum for tax minimisation. The research conducted by Rego (2003) clearly provides adequate information on various activities associated with tax minimisation in the multinational corporations of United States. Bruce et al. (2007) "*define a tax minimisation as a wide stipulated set of evasion schemes and tax avoidance which greatly influence only firms' financial organizations"* (Bruce et al., 2007). Different authors combine the evasion as well as minimisation since the strategies associated with the tax minimisation are usually considered to legal activities. However, specific strategies can only be treated to be legal while existing in the 'ambiguity' or 'uncertainty' categories. Normally, other strategies are absolutely illegal, for instance, underrated taxable income, over-stated tax deduction, etc.

In other words, tax minimisation can be considered as financial advice, which can be usually applied in different countries for paying the required amount of taxes. In the United Kingdom, the tax system is considered more complicated in comparison with other countries. When providing verifications linked to the tax

minimisation, it is necessary to distinguish the concepts and ideas used in describing the tax evasion as well as tax minimisation so that unintended consequences associated with tax minimisation are avoided such as the penalty, which can be imposed on the taxpayers on the basis of their level of ignorance concerning the legal approach for tax minimisation. Moreover, the failure in understanding the distinction between the evasion and minimisation could result in interference associated with the tax minimisation techniques and more so, causing critical legal consequences (Hoffman, 1961). In comparison to tax minimisation, tax evasion can be treated as illegitimate practice used for the reduction of tax liability. For instance, underreported income analysis or neglecting the generated income when evaluating the taxable income. Therefore, it is concluded that the terms 'legal' and 'illegal' can be used to determine the viability of tax minimisation. This can be evaluated in accordance to Hoffman (1961) who clearly verifies the distinction between the tax evasion and tax minimisation. This could be possible by using the concepts of legal prerogative approach in which different outlines have been provided by the author that tax minimisation involves a final goal, which needs to be fulfilled by tax management. Based on this evidence, the exercise of legal prerogatives can provide useful guidelines concerning tax minimisation. In contrast, tax evasion is understood to be the omission or misinterpretation of significant financial information with the purpose of evading the huge enforceable taxes. The issue of differentiating the above controversial concepts has been the prominent point of discussions amongst tax authorities, taxpayers and practitioners (Bond, et al., 2006). According to Self (2007), the 'acceptable avoidance' has been explained as an activity of tax minimisation, which consists mainly of two components; firstly, a relationship made between the business transactions and tax minimisation. Secondly, a relationship made between the commercial purpose and tax minimisation. However, if these components are not met then the minimisation is regarded as 'unacceptable'. Regardless of these conditions remained fulfilled by the minimisation activity, HMRC can still consider it as unacceptable, since tax minimisation is regarded as every activity that aims at minimising the tax liability by embracing the benefits associated with the tax reliefs (Bond et al., 2006). The challenges associated with the understanding of the distinction between the 'unacceptable and acceptable minimisation had been analysed by HMRC deputy

executive, Dave Hartnett. He suggests that the unacceptable minimisation can be as secrecy, aggression and misleading issues, which are not fully embraced within the tax system in United Kingdom (HMRC, 2008). These references could lead to the introduction of ambiguity when distinguishing between the acceptable as well as unacceptable minimisation.

The ambiguity encountered while trying to provide a full understanding of the two major conflicting terms associated with the minimisation had also been detailed by Slemrod, (2004). He suggests that evasion and minimisation cannot have a clear line between them when they connect with the tax system. In this regard, tax minimisation is considered as creative compliance concerning the tax system. It is clear therefore that, based on different arguments made by various researchers, the understanding of the acceptable tax minimisation has been recognised differently amongst a range of parties.

Kirchler et al. (2003) investigate the social representations related to the tax flight, tax minimisation and tax evasion. In addition, they attempt to provide distinction between tax evasion as well as tax minimisation based on the legal appearance. In this case, the tax minimisation is considered in terms of tax payment reductions through legal means, while tax evasion is understood as illegal tax payment reduction (Kirchler et al., 2003). From the findings made, they provide evidence that tax minimisation is the legitimate practices adopted to minimise tax liability. In contrast, tax evasion is generally associated with the immoral, fraud, risks, penalty as well as being illegal. Therefore, it can be outlined that the interpretation of tax minimisation is that issues associated with activities that connected to the effective use of the opacity of tax law to efficiently save tax.

In addition, various activities associated with tax minimisation can be analysed in terms of passive or active tax minimisation. Tax minimisation is said to be active when the transactions are made with the main intention of minimising the tax liability, whereas passive tax minimisation can be conducted without even considering the reduction of the tax liability. With regard to these kinds of tax minimisation activities, most companies, which are making losses are still required to engage in making decisions associated with the tax minimisation.

On the basis of the discussions justified above, tax minimisation is now interpreted as any activities, which comprise evasion and minimisation. Even though the minimisation is considered to be a legal activity, there is an existence of a more distinction, since different arguments have already been made by tax authority on the acceptable as well as unacceptable minimisation of tax. Therefore, the interpretations of tax minimisation are viewed in terms of the progressive issue.

This research focuses on tax minimisation and treats both concepts equally as tax savings that result from the difference between the tax liability included in financial reports and the actual tax paid to the tax authority. Furthermore, this study embraces the definition of tax minimisation as the activities that lead to reduce explicit taxes, thus, the legitimacy of both concepts is not examined.

2.6.2.3 Tax Minimisation Theory

The motivation of strategies adopted by businesses and organisations is to achieve the highest business value, which can be done through adopting a business model of interrelated set of decisions (Morris et al., 2005). This is in line with Scholes-Wolfson (1992) framework that connects between tax minimisation and business strategy, and explains the function of tax minimisation in achieving the business highest value. This framework focuses on the optimal level of tax minimisation that can be achieved through a model of decisions that deem three important concepts; including all contract parties, the significance of implicit taxes; and the influence of non-tax costs. Scholes et al. (2016, pp: 19) state that tax minimisation:

> *"requires the tax planner to consider the tax implications of a proposed transaction for all of the parties to the transaction"; "requires all planners, in making investment and financing decisions, to consider not only explicit taxes but also implicit taxes" and "requires the planner to recognise that taxes represent only one among many business costs, and all costs must be considered in the planning process".*

Shackelford and Shevlin, (2001) state that the Scholes-Wolfson model follows a versatile approach to trying to determine the role of taxes in companies, which is developed concerning three main concepts known as all parties, all taxes, and all costs. These three concepts provide excellent analytical constructing for tax minimisation; however, they are less efficient for structure rigorous examinations as non-tax costs such as the considerations of financial reporting are difficult to measure. Thus, the results derived from the framework could be difficult to interpret.

The first concept refers to all contracting parties such as lenders, creditors, suppliers, customers, managers, tax authorities and other stakeholders who are linked to tax minimisation transaction required to be consider.

The second concept refers to the consideration of the explicit taxes in tax minimisation activities, which are the taxes due to tax authority and implicit taxes such as tax induced cuts in companies' before-tax rate of return. This consideration should be applied when making and financial and investment decisions.

The third concept refers to the consideration of the effects of all costs when engaging in tax minimisations activities, these costs could be tax and non-tax costs, which involve transactions and managerial incentives costs and the trade-off between tax purposes and financial accounting purposes.

Therefore, the three concepts suggest that the objective of effective tax minimisation is different from tax minimisation. Instead, effective tax minimisation decisions must be evaluated through the choice of a contractual agreement viewpoint and in the effectiveness of organisations design. The framework implicit assumption is that if all taxes, all contractual parties and all costs are determined and controlled in tax minimisation structure, thus, it can be predicted that tax minimisation behaviour is rational and predictable in boosting after tax value (Shackelford and Shevlin, 2001).

2.6.2.4 Tax Minimisation in MNCs

Around the world, the practice of tax minimisation is increasingly common amongst international companies or companies that have overseas affiliates (Rego, 2003). Domestic businesses may also engage in tax minimisation activity (Rick and Staff, 2004, Wainwright, 2011), but international companies are likely to be more aggressive in tax reduction than local companies (Campbell and Helleloid, 2016, Habu, 2016). Tax minimisation phenomena add up to many billions of pounds every year, influencing worldwide operations, supply chains, and geographic decisions. As a result, tax minimisation sits at the core of the international economic system. It is a key to worldwide basic leadership in light of the fact that most foreign direct investment (FDI) and worldwide operations nowadays are one-sided by tax status (Contractor, 2016b).

A PriceWaterhouseCoopers (PWC) study shows that approximately 21 trillion to 32 trillion dollars were shifted to tax haven subsidiaries in 2012. In 2014, 400 large multinational companies had tax agreements with the Luxembourg tax authority allowing those companies to pay less than 1% tax rather than the statutory rate, which is 29%. Although this is probably an essential policy phenomenon in the European Union, the US has tackled this issue over the last two decades by developing tax information exchange agreements (TIEAs) with tax havens (Bennedsen and Zeume, 2015).

Contractor (2016a) explains that if an American drug company has affiliated in a lower tax rate country such as Ireland, the company may produce the drug in Ireland and export it to the US at an exaggerated price, even though the R&D costs have been incurred in the US. The impact of these processes will raise the income from Ireland because it is a lower tax rate country and decrease the US taxable income and tax liability. Intellectual and brand rights may be shifted to Bermuda, a country free of tax, which then asks for a sovereignty payment for a registered trademark. This will create a deduction from taxable income due to the US and Ireland, and concurrently increase Bermuda’s subsidiary income.

Companies often seek ordinary business activities in countries considered to be tax havens. The main reason and motive for establishing these subsidiaries, is tax saving, and to facilitate movement of the company's earnings from high tax territories to tax havens (Graham and Tucker, 2006, Hanlon, 2015). For example, registering patents and trademarks in low-tax affiliates allows a company to take advantage of opportunities of economic efficiencies, while high tax affiliates pay for utilising these assets. This plan decreases the company's tax liabilities, although if repatriation of the profit leads to repatriation taxes, this process might reserve cash in low tax subsidiaries. On the other hand, Bennedsen and Zeume (2015) provide evidence that the motivation for moving abroad goes beyond tax saving, by using subsidiaries for entrenchment activity, which may cause a decline in shareholders' value. In this case, firms frame a complicated system to prevent shareholders and tax authorities from tracking the firm's resources.

For example, the international coffee chain Starbucks has paid tax only once to the tax authority during its 14-year period of operation in the UK. Starbucks subsidiaries' transactions assist in creating taxable losses through three categories: property payments, price shifting, and inter-company loan (Campbell and Helleloid, 2016).

Rego (2003) investigates whether economies of scale exist for tax minimisation: whether factors such as a company's size, profit, or multinational operation, engage in more tax minimisation compared with other companies. She shows there is a negative relationship between pre-tax income and effective tax rate (ETR), and interprets that as evidence that companies with large pre-tax income have the motivation and resources to adopt tax minimisation activity. Additionally, she finds that multinational companies with various foreign operations have lower worldwide ETRs. Consequently, multinational companies have greater ability to minimise tax than local companies.

In the UK, one of the methods of tackling the movement of a firm's resources offshore has been by Tax Information Exchange Agreements (TIEAs). The UK has signed a number of TIEA agreements to exchange information between countries relating to income tax savings purposes (HMRC, 2014b). In addition,

the UK is an active member of the Organisation for Economic Co-operation and Development (OECD) partly due to a desire to improve the effectiveness of tax information exchanges and ensure all territories implement the international standard of financial transparency and exchange of information (HMRC). The UK statutory tax rate was reduced between 2008 and 2014 from 30% to 21%, which is similar to those of Switzerland at the time (Talley, 2015). Since April 2015, HMRC planned a reduction to 20%, and a further reduction in April 2017 to 19%, aiming to reach 18% after 2020 (HMRC, 2015, trading economics, 2017).

2.6.2.4 Transfer Pricing

The international community has experienced transfer pricing as the tax minimisation as a tax reduction strategy that has extensively been employed. This involves the application of terms as well as conditions concerning the transactions amongst relevant parties, particularly the market deficiency situation. With regard to this fact, the strategies associated with the possibilities of tax reduction amongst various international organisations. It normally occurs when more than two firms engage in trading activities (Hebous and Weichenrieder, 2010).

Generally, the introduction of transfer pricing was embraced purposely to facilitate the allocations of costs between various departments and affiliates. The exponential increase in global markets as well as businesses has enabled transfer pricing to be vital tool for the management control, such as performance management. The performance of different organisational sections cannot easily be determined, especially when there is an inaccuracy in the transfer pricing. (Swenson, Deborah L., 2000).

The study conducted by Graham et al., (1996), clearly supports that the registration of the compensated may not be a guarantee. The prices associated with royalties can be made possible by adhering to the special principles. The problems experienced with royalties are related with the fair price determination. In most cases, the tax authorities are faced with difficult decisions, especially when addressing the issues of arms-length associated-price. Frank et al., (2009) state that companies can involve in transfer pricing strategy by shifting their

income from high statutory tax rate countries to lower tax rate countries. This leads to reducing their overall tax liabilities relative to their profit before tax, and increase tax minimisation generated from permanent tax differences.

2.6.2.5 Thin Capitalisation

This concept can be understood on the basis of the relationship between the debt and equity, such that debt supersedes the equity in a company, then the company is said to be thinly capitalised. High debt levels are known to increase the interest made on the payments, leading to the higher value of the entire tax deduction of company (HMRC, 2016c). The thin capitalization can be determined by different factors such as agency costs, rates of corporate tax, interest rates and bankruptcy.

The rules associated with the thin capitalisation are formulated purposely to minimise massive debt-financing as well as the losses associated with the tax-revenue. There are two major kinds of rules adhered to when utilising the thin capitalization, including specific and non-specific rules.

1- Allocating a great amount of debt where there is deductible interest payments exist.
2- Allocating a great amount of interest that can be deduced by refereeing to the interest rate (paid or outstanding) to another variable (OECD, 2012).

Consequently, the company might choose debt over equity to raise fund to take advantage of the tax deduction that results from interest, whereas dividends on shares do not offer such an advantage. Therefore, the difference in tax treatment between debt and equity could be a good reason for a company to increase its interest payment to reduce its tax liability.

2.7 Conclusion

This chapter discusses the corporate tax income literature and reviews the UK accounting and taxation with a focus on the corporate tax gap. It begins with providing information on the background and institutional knowledge about the UK tax system that help in answering the research questions. It also provides a structured perspective of the corporate tax regime in the UK tax system and reviews the relationship between tax system and financial accounting with focus on their different objectives. The difference between accounting and taxation lies on both have different purposes and targets, while financial accounting purpose is focused on provide investors and creditors with certain discretionary information to help them in making the accurate decision. However, taxation focuses on historical data that presents the firms' performance to calculate taxable income and figure out the tax owed to the tax authority. The two systems of measuring income are complementary as they provide different information to different users, however, accounting adopts IFRS in preparing financial reports and tax system adopts Tax law standard lead both to develop in different directions and continue serve different users.

This chapter also reviews the literature concerning book tax difference and its components namely permanent differences and temporary differences. In addition, it provides detailed information about the sources of book tax differences. These sources are, first; normal book tax difference, which results from the different in adopting different systems and standards in calculating income tax, second, earnings managements that result from full provision approach that adopted in the UK, which allows managers to anticipate deferred taxes in the future.

This anticipation allows room for managerial opportunism. Third, tax minimisation, this section divides to three subsections to highlight various aspects in this subject, it begins with provide a definition for tax minimisation and review the legitimacy of it. Finally, there is a review of empirical studies conducted on tax minimisation all around the world. The final section evaluates tax minimisation on MNCs and reviews some relevant concepts.

CHAPTER THREE: CORPORATE GOVERNANCE

3.1 Introduction

Corporate governance mechanisms are an important element in explaining managerial behaviour and the adopted monitoring approach that assist in reducing the principal-agent conflict. Corporate governance arguably also plays a vital role in regulating the level of a company's engagement in tax minimisation activities. Corporate governance research has been a focus of various academic fields such as accounting, finance management and economics (Aguilera et al., 2016, Filatotchev et al., 2009) and has acquired an international significance after the financial crisis in 2008 (Du Plessis, et al., 2018). This is due to rising corporate scandals and public protests on excessive executive remuneration (Aguilera et al., 2016). This chapter presents reviews previous literature on corporate governance concerning definitions and theories, as well as institutional context pertinent to the research questions. It illuminates the issue of how the literature to date views the effect of corporate governance on the relationship between tax minimisation and firm value. The theoretical underpinning of this issue lies within the confines of agency theory, managerial hegemony theory, shareholder theory, stewardship theory, and stakeholder theory, although the focus of the chapter considers the opposing concepts embedded within the agency.

3.2 Corporate Governance Definition

Corporate governance definition is essential and flexible, allowing itself to evolve to meet the changing in the corporate environment (Du Plessis et al., 2018). Corporate governance is defined by Cadbury report in 1992 as:

> *"The system by which companies are directed and controlled"* (Cadbury, 1992: P. 15).

The focus of corporate governance in this definition is considered as a narrow and inward-looking method that concentrates mainly in determining internal director-related rules within the corporation, however, in 2004, the OECD extends Cadbury's definition of governance by defining it as:

> *"The procedures and processes according to which an organisation is directed and controlled. The corporate governance structure specifies the distribution of rights and responsibilities among the different participants in the organisation such as the board, managers, shareholders and other stakeholders and lays down the rules and procedures for decision-making"* (Johnston, 2004: P. 151).

This definition is an outward-looking, more comprehensive and multifaceted method that understands corporate governance on a wider scale and adopts a perspective beyond the issue of directors' management and control (Du Plessis et al., 2018).

The concepts of corporate social responsibility and corporate citizenship are issues dominated in corporate governance debates for many years. Those concepts are linked to the good corporation concept and have been of significance to many academic in the field since the beginning of the nineties (Du Plessis et al., 2018). Nevertheless, the debate has moved from narrowly focusing on corporate social responsibility issue to a wider concentration on general corporate responsibility as demonstrated in the consultation paper published by the UK Department for Business and Innovation skills in 2013:

> *"Corporate responsibility- the increasingly more acknowledge term for corporate social responsibility- is the responsibility of an organisation for the Impacts of its decisions and activities on society and the environment through transparent and ethical behaviour above and beyond its statutory requirements"* (UK Department for Business and Innovation & Skills, 2013: p.3).

This definition moves the corporation from the narrow aim of making money or profit to being responsible to build a better society (especially for large public companies) and to demonstrate corporate citizenship. The financial crisis of 2007-2009 does not indicate the total failure of corporate governance and the problem of risk management was due to the failure of system and models used; rather, it is more about risk governance and involves ineffective board oversight and increasing risk behaviours. The primary cause of the financial crisis occurred due to investors requiring immediate short-term paid income that reflects managers'

impulsive behaviour and companies' irresponsible activities (Du Plessis et al., 2018), which is far beyond corporate governance contemporary definition. This view is clearly indicated in the King report in 2009 that represents South African and UK views as follows:

> *"The credit crush, and the resulting crisis among leading financial institutions, is increasingly presented as a crisis of corporate governance. However, although current problems are to an extent indicative of shortcomings in the global financial architecture, they should not be interpreted as reflecting dysfunction in the broader south African and UK corporate governance models where values-based principles are followed and governance is applied, not only in form but also, in substance"* (King Report :P.8).

Corporate governance in the contest of tax minimisation activities is considered a moderating factor of those activities since it could affect decisions related to the engagement in tax saving (Annuar et al., 2014). For instance, a manager of an organisation that practices what may be considered good corporate governance will take into account tax minimisation activities that increase firm value and promote shareholders wealth. However, a manager of a company in which poor corporate governance prevails will consider these activities in terms of his self-interest as acknowledged through agency theory (Desai and Dharmapala, 2009).

3.3 Agency Theory

Agency theory in corporate governance explains the agency relationship between shareholders (principals) and managers (agents). This relationship involves conflicts, as the latter tend to maximise their benefit instead of the former's benefit, and suggests that managers use information asymmetries as an effective tool to improve their benefits at shareholders expense (Jensen and Meckling, 1976). This agency relationship arises when the management and control are separated, and the existence of information asymmetry between shareholders and managers stimulates managers to maximise their wealth. As only managers can have more access to the information, this obstructs shareholders' ability to monitor managers' performance. The underlying reasons for managers to

maximise their wealth objectives are their status, remuneration and job security (Weir et al., 2002).

Thus, agency theory stands on the basis that the so-called agency dilemma could exist due to the existence of two events. First, the separation between management and control results in a conflict of interest between the agent and principal. Second, it is difficult to identify the interest conflict between the agent and the principal upon a full contract. In the absence of shareholders' monitoring role with the separate ownership and control, managers could divert the firms' resources and endeavour their objectives at shareholders expense (Jensen and Meckling, 1976; Hart, 1995).

The complete and comprehensive contractual relationship between the principal and agent could include huge transaction costs, which make it infeasible (Marnet, 2005) because the future contingencies are unable to be predicted and controlled, thus, there is residual control right exists for agents to act and make a rational decision in these circumstances that are not specified in the contract. As agents, obtain delegated authority their decisions impact both agents and principals interests (Williamson, 1988; Hart. 1995).

In principle, the shareholders hold all the residual control rights, however, they are not qualified to exercise the control rights themselves and make a decision, due to information asymmetry, that is why they hire the managers to do the work. This eventually allows managers to retain considerable residual control rights including the right to address shareholders funds on their own decisions (Shleifer, and Vishny, 1997). These residual control rights raise managerial opportunism in which shareholders shift the profit into managerial discretion and managers utilise this discretion to shift the company's resource to their own (Williamson, 1988).

Controlling agency problems between managers and shareholders is considered a significant element for a corporation's survival (Fama and Jensen, 1983). The best solution to mitigate agency problem can be through the perfect monitoring system, although, this option is infeasible as the monitoring cost is so high and in addition, detailed monitoring could result in unintended outcomes (Marnet, 2005). To reduce the agency problem, agency theory suggests initiatives to align

managers' behaviour with shareholders' interests. Moreover, the separation of ownership and management contributes to the conflicts of interest, where the separation mechanisms can be by hierarchies, independent directors and share incentive structures (Fama and Jensen, 1983).

The conflict of interest between managers and shareholders with the incomplete contract would increase the need for corporate governance to be implemented as a mechanism to mitigate this conflict and prevent managerial expropriation of investors' fund, which is a central aspect of agency problem (Shleifer and Vishny, 1997). This can be effective through an adequate monitoring system that controls incentive conflicts and managers performance in utilising their residual control rights and making rational decisions (Hart, 1995).

The purposes of corporate governance mechanisms is to restrict managerial discretion and improve formal and informal accountability, also, consider the socio-psychological factor that prevents managers from exploring governance issues that are hidden in-between spaces (Marnet, 2012). These purposes can help in reducing agency problems and aligning between the objectives of managers and shareholders.

Extending agency theory to the field of taxation, the evasion of tax is a strategic option that might be the preferred choice of managers, explained by the implied or actual contract of employment between managers and shareholders to increase shareholders wealth.

Therefore, terms of employment may give managerial incentives to exploit opportunities in tax management, which may result in personal gain at the expense of shareholders. Desai and Dharmapala (2009) demonstrate that employment contracts may not be at the optimal level for shareholders for two reasons related to tax minimisation. Firstly, their compensation level is not linked with the actual effort levels made by managers. Secondly, attempts by managers to decrease the tax liabilities of the organisation would involve the internal control system's reliability because any illegal plans of tax evasion would be performed secretly. Thus, the managers could establish a logical basis and take advantage of internal

control functions at the shareholders' expense. Applying those processes in companies that have a multinational appearance, various types of economic legitimacy, and comprising a mixed approach of governance could be difficult, as the affiliates are influenced by the headquarters and have to consider the parent and the host country's regime simultaneously. The worldwide trading of MNCs and their affiliates (direct investment and majority foreign-based) have increased the incentive to voluntary disclosure within companies, as those subsidiaries tend to have information asymmetry (Windsor, 2009, Madhani, 2015). Furthermore, those subsidiaries tend to formulate their transparency practices and corporate governance according to the host country's regulations, and the institutional environment. This combination between parent and host country creates an intricate regime, which is difficult to manage (Windsor, 2009).

Corporate governance systems in some countries, such as the UK, US, and Australia, are designed to tighten a restricted triple form to combine a company's board, managers, and shareholders, to maximisie their benefits. Corporate performance and accountability within these jurisdictions have been the driving force behind the financial benefit on behalf of shareholders.

In short, agency theory in corporate governance represents the agency problem that occurs due to the agency relationship between principal and agent. Agency theory is based on the assumption that agency problems occur in two scenarios, first, a conflict of interest exists between principal and agent, where each party peruse his own objectives on the others' expenses. Second, the contract between principal and agent is incomplete and does not allocate all the conflict interests. Therefore, the principal has to incur agency cost to align their interests with the agents' interests to maintain the company existence. Thus, corporate governance mechanisms exist to play a moderating role in reducing agency problems by virtue of restricting managerial opportunism and enhancing various approach of accountability.

3.4 Corporate Governance Mechanisms

Due to the existence of information asymmetry, shareholders tend to depend on corporate governance mechanisms to ensure that managers operating decisions are in line with shareholder interests. Corporate governance mechanisms and tax minimisation are interacted in term of managerial opportunism, for example, Desai and Dharmapala (2009) argue that the opportunity of managers' engaging in tax minimisation lead to pursue their own interest and this engagement underlying complexity and obfuscation around financial information to prevent the detection from the tax authority.

According to Demirag et al. (2000), corporate governance mechanisms can be classified as comprising two categories; one is external to the firm that reflects in statutory requirements and the markets operation; the other is internal mechanisms to the firm and its organisation. External mechanisms include the market for corporate control, which considers as the last option mechanism that helps in making the assets in more productive use and creates a large benefit for both shareholders and the overall economy (Jensen, 1986; Weir et al., 2002). This mechanism is existed in hostile takeovers and found to be an effective mechanism that utilises as the market valuation for firms' performance (Demirag et al., 2000; Weir et al., 2002). In addition, apart from the previous mechanism Aguilera et al. (2016), consider also the legal environment, stakeholder's activism, rating organisation and the media.

The internal mechanisms, according to Demirag et al. (2000), include board composition, managerial shareholders, non-managerial ownership includes institutional shareholders. Also among these mechanisms are; director quality, committee structure, board monitoring, debt financing, according to Weir et al., (2002). They suggest that it is important to increase the awareness of the interrelationship between internal and external mechanisms as companies are shifting to specific internal governance structures in line with the Code of Best Practice.

In contrast, the internal-external mechanisms distinction is problematic in that over time, as some mechanisms have multiple identities, both insider and outsider

contradict between service and control duties (Concannon and Nordberg, 2018), especially in distinguishing whether shareholders are internal or external. Shareholders are considered one of the internal mechanisms because in a theoretical sense they are the company's owner (control), however, they are external mechanism as they do not work in the company and they are legally separate from it and are not liable for the company's debts (service). In this instance, this research considers institutional ownership as external because they do not work in the company and they are legally separate from it.

In addition, this study focuses on one external mechanism for monitoring role purpose, which is institutional ownership and one internal mechanism, which is executive remuneration to examine its impact on tax minimisation strategy and firm performance.

External mechanisms are the mechanisms that act from outside the core of the company. Walsh and Seward, (1990) focus on the market for corporate control as a significant external mechanism and suggest that external control mechanisms are expected to be operated when the internal control failed in controlling managerial opportunism. However, Aguilera et al., (2016) argue that market for corporate control is not the most significant external mechanisms as there are many other that act to make certain that managers work to achieve stakeholders interest, ensure stakeholders engaging in a productive relationship, afford financial transparency, and provide overall strategic guidance. These external mechanisms are able to immediately influence firms' governance and the efficiency of the internal mechanisms, which are the legal environment, stakeholders' activism, rating organisation and the media. Market for corporate control can discipline managers and minimise agency cost (Aguilera et al., 2016) through the breakdown of the internal control processes of the firms that have considerable free cash flows combined with policies that cause for resources loss (Jensen, 1986). However, this work taken after acquisition can generate later problems that have large influence on stakeholders; also, the market for corporate control cannot resolve corporate governance problems as it faced huge inspection and judgment from labour associations, the media, and some significant stakeholders (Shleifer and Vishny, 1997; Aguilera et al., 2016).

3.5 External Corporate Governance Mechanisms

3.5.1 Institutional Ownership Monitoring

Institutional ownership can offer direct monitoring and disciplining upon the management team and constrain possible opportunism in policy decision-making (Andrikopoulos et al., 2017). Furthermore, active monitoring can put pressure on the management to maximise shareholders' benefits. For instance, Sheifer and Vishny (1986) state that building large shareholders foundation with a motivation to monitor can lead to boosting monitoring management.

The nature of ownership structure in the UK is widely dispersed (Short and Keasey, 1999; Faccio and Lang, 2002) which due to the existence of takeover code and investors protection regulation that serve the minority shareholders interest, however, there is a growing concentration of institutional ownership (large shareholder) (Shleifer and Vishny, 1997; Sun et al., 2016). Short and Keasey (1999) state that the high level of institutional ownership in the UK compared to the US, leads the manager to become more embedded and institutional ownership are more able to harmonise their monitoring duties, which due to the bankruptcy law precisely implements creditor rights in the case of financial crisis above both managers and shareholders.

Large shareholders who are institutional ownership in the UK can play a vital role through management monitoring in reducing agency problem and aligning the two parties' interests. However, institutional shareholders could act to achieve their own benefits and utilise their authorised rights to increase their own resources on minority shareholders account (Hart, 1995). Shleifer and Vishny (1997) argue that the law regulation does not provide adequate protection to monitoring large shareholders and emphasise the significance of the legal right in protecting minority shareholders and monitoring large shareholders, otherwise, in the presence of high private benefits of control, large shareholders will dominate minority shareholders. In contrast, Coffee (2001) state that strong markets require strong legal rules and the UK with the development of the stock exchange market and the wide spreading of dispersed shareholders, new political voters developed

legal regulations to bridge the gaps between regulation loopholes. Besides, the UK's Companies Act (2006) adopted adjustments were a reaction to this requirement.

Moreover, some studies suggest that institutional shareholders in the UK are passive and ineffective in their monitoring role (Goergen and Renneboog, 2001; Dong et al. 2008), However, Dong et al. (2008); McNulty and Nordberg (2016) categorise institutional shareholders based on the trading characteristics to active and passive. Dong et al. (2008), after they split the institutional shareholders' sample to active and passive shareholders, they find that active shareholders with long- investment can play an important role in monitoring, restraining the directors pay level and boosting the pay-performance relationship.

Nordberg (2010) states that active and passive investors are both used in two different senses, which relating to the investment approach and investors' engagement with the companies. Whilst Investment approach means whether they actively select which shares to hold, or passively follow an index, investors' engagement refers to whether investors actively engage with the companies by challenging policy, debating strategy or voting; or passively take whatever comes. In regards to investors' engagement, Nordberg (2010) adds that investors are able to take three participatory positions concerning their investments, either as a general tendency towards their whole portfolio or towards particular shares. They could be passive in their approach to the company, management and the company's strategy. This might include voting with management at the meeting of shareholders or may not vote at all. However, active shareholders endeavour to impact the direction of the company by using their voting rights to indicate dissatisfaction with the company's strategy or management, while sometimes pressing with managers and senior management to change the policy.

Besides institutional ownership, there are also shareholders who are non-executive directors (known as outside directors in the US), who can play a vital role in monitoring the management and protecting shareholder interests as they are independent and do not have any link with the management. Choi and Rabarison (2018) suggest that non-executive directors can provide efficient monitoring by

showing powerful dispute through either opposite opinion and withdraw or hold their votes on management proposals. This dispute can have an impact on increasing firm performance. This positive impact is suggested since the beginning of 1990s, for example, Byrd and Hickman (1992) argue that non-executive directors can play an important role in monitoring the management decision during the process of the bidding tenders' acquisition during the eighties in last century.

3.5.2 Ownership Structure and Corporate Tax Minimisation

Agency problems exist in companies with dispersed ownership because of the rise of information asymmetry and the existence of interests' conflict between shareholders and managers. Thus, the main purpose of corporate governance in this situation is to reduce the managerial incentives from explicit expropriation and to boost the conjunction between the two parties' interests (Jensen and Meckling 1976).

The relationship between tax minimisation and ownership appears in the shape of managerial stock ownership; in this case, managers are deemed to work in achieving shareholders' interest, which leads to reduce agency costs (Jensen and Meckling, 1976). Therefore, managers' engagement in tax minimisation strategy results in increasing both managers and shareholders wealth. Prior research conducted on the relationship between tax minimisation and different ownership structure such as managerial dual-class share, institutional ownership, concentrated and disparate ownership, family ownership, foreign ownership and hedge fund ownership. Each of these characteristics seems to have a vital function in deciding the tax minimisation level through impacting manager's decisions and behaviour upon tax-saving strategy. In studying the impact of institutional ownership on companies' tax minimisation behaviour, Bird and Karolyi (2017) argue that companies with high institutional ownership tend to engage aggressively in tax minimisation in particular international tax minimisation strategies, such as transfer price and the use of tax haven. This indicates that institutional ownership perceives tax minimisation as a value-added and the benefit of these activities exceed their cost. In addition, Desai and Dharmapala

(2009) find that institutional ownership plays a moderating role in the relationship between tax minimisation and firm value measured by Tobin's Q, in which the relationship is positive for the companies with a high level of institutional ownership as predicted by agency theory.

3.6 Internal Corporate Governance Mechanisms

3.6.1 Executive Remuneration and Control

Executive remuneration is part of the managerial structure, which is one of the most significant corporate governance mechanisms that help in reducing the agency cost through mitigating principal–agent conflicts. Executive compensation functions as incentives for managers to enhance firm value and align their interest with shareholders. There is increasing interest in this mechanism especially after the financial crisis in 2007-2008 and the results of the empirical studies are mixed and inconclusive (Aguilera et al., 2016). This motivates the researcher to adopt this mechanism in this study to examine its impact along with institutional ownership on the relationship between different tax minimisation components and firm value. Aguilera et al. (2016), argue that the lack of empirical findings could be due to describing an incomplete picture of governance mechanisms, which pay attention only to internal mechanisms and ignore external ones, thus, experiences unobserved heterogeneity and faulty specification. Contrarily, other studies find a positive relationship between remuneration structure and firm performance, for example, Mehran (1995) studies the relationship between compensation and ownership structures, control and firm value measures by both Tobin's Q and ROA in a random sample of selected companies and find a positive relationship between equity-based compensation, percentage of equity held by executive and firm value.

In addition, the presence of the active shareholders, executive compensation can lead to reducing agency cost, for example, Bertrand and Mullainathan (2001), argue that executives are remunerated for luck and this luck payment exists more on the most discretionary components of compensation, salary and bonus. This luck payment is stronger within companies with poor governance, however, the results are opposite in well-governed companies with large active shareholders as

they charge CEO more for the options that are granted. These options include gift components, due to CEO have a value from the inherent volatility despite their effort. In addition, companies with active shareholders and smaller boards are better in charging their CEO and better in removing the gift components by reducing the other payment components. Moreover, Yermack (1996) also finds that small boards are more effective and lead to increase firm value measured by Tobin's Q and as consequences shareholders wealth, also, there is a negative relationship between board size and compensation responsiveness to shareholders resources. These results are robust to some controls for firms' size, industry membership, managerial ownership, growth opportunity and alternative corporate governance structures.

Theoretically, effective remuneration and executive performance monitoring are tools to incentivise manager and align their interest with shareholders (Marnet, 2005), however, there has been growing concern on the effectiveness of board's monitoring role as the effect of selecting the board members by managers can lead to producing ineffective board function (Hermalin and Weisbach 2001; Marnet, 2005). The effectiveness of the board is limited when it comes to set executive remuneration and prevent rent extraction, compare their performance with the ideal contracting view, where the director takes a hostile attitude against management. Remuneration is subject to market forces and managerial power, in which the former is suggested by the ideal contracting view that drives to minimising the agency costs and the later drives to achieve managerial rent extract. The purpose of setting director remuneration is to mitigate agency problem and align between managers and shareholders' interests, however, remuneration may become part of the agency problem and leads to managerial opportunism (Bebchuk and Fried, 2003; Marnet, 2005).

In term of the influence of non-executive directors on executive remuneration, Ryan and Wiggins (2004) argue that the non-executive directors hold a bargaining advantage over the CEO, which leads to align executive remuneration with shareholder interests. In addition, companies with more independent directors on the board, award directors with compensations based on more equity-based, however, compensation presents a weaker incentive to monitor in case of

executive power increase over the board. For the type of remuneration awarded to the executive, Ryan and Wiggins (2004) find that companies with more executive and entrenched CEOs adopt less equity-based compensations, moreover, companies with entrenched CEOs who are also, board chair are perhaps incentivised to replace cash payments with equity.

There is an argument that companies ignore utilising conceptualised operating figures in their financial reports, thus, boards of directors are able to make a decision on earnings numbers in determining the executive annual compensation (Bushman et al., 2000).

3.6.2 Executive Remuneration and Agency Cost

To reduce agency problems some initiatives should be taken to align shareholders' and managers' interests. These initiatives underlie some costs defined by Jensen et al. (1976) as agency costs, which including three costs; first monitoring costs endured by shareholders such as the cost of assessing and controlling managers' behaviours through budget restrictions, compensation policies and operating rules. Second, bonding costs incurred by the managers such as financial and non-financial costs and the residual loss that occur due to the difference between the manager's decisions and the decisions that would maximise principal resources.

In general, tax minimisation strategy could lead to increase in after-tax income and maintain long-term tax benefits for shareholders, thus, this could incentivise shareholders to induce executives on the involvement in tax minimisation strategy and increase their after-tax resources. Some research has examined the relationship between tax minimisation opportunities and both before and after-tax decisions of performance measures executive compensation plan in the short term. For example, Atwood et al (1998) find that companies that have higher opportunities of tax minimisation activities choose after tax performance measures to make sure executives deem the results of tax strategy and operational decisions. Atwood et al (1998) state four factors that influence tax minimisation investments according to prior research, these factors are firm size, foreign operating, capital intensity and the number of operating sections, which have a positive relationship with after tax performance measure.

3.6.3 Executive Remuneration and Tax Minimisation

A better understanding of how tax impact executive remuneration could provide beneficial perception in answering essential questions in both corporate and public finance (Bird, 2018). For instance, the nature of the procedure deciding executive remuneration has been a debate in corporate governance subject. Nonetheless, because of increasing income inequality and attention upon governance budget deficiency, policymaker and the public have become progressively attentive in increasing the progressive method in the tax system. This can reflect the reaction of high-income earners such as executive to such progressivity at both individual and company level (Bird, 2018). Changing the tax rate leads the company to choose the structure of remuneration package, in which each of the package components might be taxed in a various method with different non-tax costs and benefits to the company and managers (Bird, 2018).

As far as tax expenses is a concern, the company's target is that of reducing tax expenses and lower the effective tax rate (ETR) through tax minimisation strategy, thus, executives will be compensated for their effort to achieve this target. Hence, executives are expected to effectively manage this strategy to achieve tax minimisation target and their role conditions with shareholders. Some studies find that engaging in tax minimisation activities leads to reduce ETR and increase executive remuneration, which indicates that executives are provided with incentives to generate tax saving from reducing tax expenses reported in the financial statement (Armstrong et al., 2012).

In explaining the relationship between executive remuneration method and tax minimisation, Gaertner (2014) examines the after-tax CEO incentives and corporate tax minimisation and finds a negative relationship between after-tax CEO remuneration and effective tax rate. However, there is a positive relationship between cash-based remuneration and the adoption of after-tax based remuneration, which explains the executive are rewarded for taking on additional remuneration risk. In addition, the annual bonus considers as one of the mechanisms utilises by companies to reduce tax risk, however, it's not the most effective method, for instance, equity-based remuneration can incentivise

managers to minimise tax exposure up to market price, reflects tax minimisation activities. In addition, as executives are required to prepare two different income reports, accounting and taxable income, thus, executives could tend to report a high accounting income as an incentive for potential investors, attract better debt contracts and increase their remuneration, however, they tend to report a low taxable income to conserve shareholders resource from transferring to the tax authority.

In understanding the difference engagements in tax minimisation strategy between private and public companies, there is some thought that the likelihood of engaging in tax minimisation strategy by managers in public companies is less than in private companies. This is due to public companies relying excessively on equity finance from the external capital market, which demands managers' performance-based remuneration to reduce agency conflict between managers and shareholders. Thus, those managers are required to increase the financial accounting income reported to the capital market. Nevertheless, as the UK markets for public and private companies are fundamentally different, managers in private companies with concentrate ownership can discuss firm performance information and tax minimisation activities effectively, in a method not through the financial statement (Ball and Shivakumar, 2005).

Thus, the pressure of reporting higher income to the capital market is lower, also, the contracting with managers and creditors is based on information not in the financial statements (Ball and Shivakumar, 2005). Therefore, private companies are more able to report lower earnings to engage in tax minimisation through transactions leads to a decline of both figures of accounting and taxable income reported (Slemrod, 2004).

3.7 Conclusion

This chapter represents corporate governance knowledge and discusses some concepts related to the research subject. It begins with the expansion of corporate governance definition overtime and highlights agency theory, which is the main theory that adopted for this research. In addition, it explains the internal and external corporate governance mechanisms and shed light on the controversial distinction between internal and external mechanisms. This chapter focus on the two main mechanisms that adopted in this research namely institutional ownership as an external mechanism and executive remuneration as an internal mechanism, and review their relationship with tax minimisation in agency theory context. The role that corporate governance plays on the relationship between tax minimisation and firm value is discussed in the next chapter.

CHAPTER FOUR: CORPORATE TAX MINIMISATION, CORPORATE GOVERNANCE AND FIRM VALUE

4.1 Introduction

This chapter reviews tax minimisation and corporate governance mechanisms and investigates their impact on firm value. The impact of both tax minimisation and corporate governance on firm value is associated with both cost and benefits as explained by agency theory in which the cost is due to the conflict of interests between managers and shareholders because of the existence of information asymmetry (Jensen and Meckling, 1976, Desai and Dharmapala, 2009). Corporate governance uses a series of mechanisms to mitigate agency problem, which lead to align the principal- agent interest and consequently increase shareholders wealth that in turn can be reflected in firm value. Thus, this chapter shed lights on literature concerning the influence of both tax minimisation and corporate governance mechanisms on firm value.

4.2 The Perception of Shareholders and Firm Value

Conventionally, shareholder's value increases when companies engage in tax minimisation activities, although a more accurate prediction is provided by an agency approach on tax minimisation in which corporate governance is viewed as a significant determinant of tax savings valuation. Tax minimisation increases firms' after-tax value and is linked to the standards of governance where, for instance, poorly governed companies may compromise this value due to increasing managerial opportunism. Therefore, the impact of tax minimisation in firm value is greater for well governed companies (Desai and Dharmapala, 2009). The Companies Act 2006 forces a duty on directors to promote the success of the company and in so doing increase shareholders wealth. From the shareholders perspective, success can be measured by profitability (Cho et al., 2019), and that profitability can be measured in a variety of ways, two of which are employed in this research: these are Tobin's Q and Return on Assets (ROA).

4.2.1 Market Value Measured by Tobin's Q and Firm Valuation

Tobin's Q is defined as the ratio of the company market value to the replacement cost of the net tangible assets (Brainard and Tobin, 1968). It is an indicator of a profit rate that can be determined by the difference between the predicted rate of return on assets and the measured supply cost of assets based on market expectations (Chan-Lee, 1986). The valuation ratio embodies the current financial market prediction, which is deemed to be one of the main benefits of this ratio. Tobin's Q measures the company's valuation from the shareholders perspective (La Porta et al., 2002), in studying Tobin's Q as an indicator for firm performance, Wolfe and Sauaia (2003) suggest that Tobin's Q can be a more meaningful method in evaluating the company's comparative performance. It also offers the ability to determine whether as an ancillary or final indicator can provide useful information concerning management successfulness in operating the assets under its control, the potential growth and identifying the company's ability in capturing investment opportunities.

Tobin's Q is widely utilised in the financial literature as a proxy for future investment opportunities and future performance. Fu et al. (2016), state that the numerator of the rate (market value) relies on discounted predicted future cash flows created by the company's assets. As the denominator is, the replacement cost of the assets is articulated in present value, there is a positive relationship between company's Tobin's Q and future cash flows; in addition, they find that higher Tobin's Q ratio is associated to higher future operating performance.

This ratio is also widely utilised in corporate governance research in order to examine the relationship between managerial ownership and firm value (Morck et al., 1988). Moreover, Yin et al. (2018), examine the importance of monitoring for the institutional ownership and firm value measured by ROA and Tobin's Q, find that institutional ownership's monitoring approach improves firm value. Furthermore, they find that the increase in long term shareholders lead to enhance firm performance measured by Tobin's Q, and ROA.

In investigating the impact of information technology on financial market as measure of firm performance, Bharadwaj et al., (1999) find a significant positive relationship between information technology investments and Tobin's Q. In

addition, Kim and Bettis, (2014) study the relationship between firm performance and cash holding for over 63,000 firm year observations for US companies from 1987 to 2009 and find that their shareholders value cash holding and also, the potential benefit of cash holding could lead to more investment and job growth. In addition, La Porta et al. (2002), argue that firm valuation measured by Tobin's Q is higher in two factors - countries that have a stronger protection of minority shareholders and companies with higher cash flow ownership through controlling shareholders.

4.2.2 Market Efficiency Theory

Market efficiency theory explains the influence of stock information on the securities markets. The widely held view is that in an informationally efficient market the increase of information leads to the spread of the news quickly which, in consequence is fully reflected in the stock prices. Fama (1970) explains this assumption in which an efficient capital market comprises the information fully and immediately reflects on the stock prices. This theory is still relevant and advocated in research concerning explaining stock price movements. For example, Malkiel (2005) examines the efficiency of the market in adapting accurately to new information over a period of 30 years. He finds that professional investment managers do not beat their index benchmarks and generally market price reflects full available information. Even though there are, several studies that support the market efficiency assumption in describing stock market behaviour (Fama, 1970; Malkiel, 2003; Malkiel, 2005) there are other studies providing evidence about the inefficiency of the stock market in reflecting the available information due in large part to a delay in stock price responses to event announcements. This delay in price responses is due to the information delivered in low investors' attention time or this information is less prominent (Klibanoff et al., 1998; Hirshleifer et al., 2013). For example, Campbell and Shiller, (2001) examine the application of two forecasting variables for stock market namely, price earnings and dividend price ratios utilising annual US data from 1971 to 2000 and quarterly data for 12 countries from 1970. They provide evidence that the ratios are beneficial in forecasting the movements of future stock prices comparing to the simple efficient market models. However, the inefficient capital market is unable to operate fully

and immediately companies' information that related to performance and future potentials, thus, the companies' valuation underlying in stock prices by market participants will be irrational, which leads to the unreliability on stock price as a measure to reflect the reliable information that explains firm value (Holthausen and Watts, 2001).

To conclude that stock market prices manifest shareholders valuation as these prices reflect full and available information about companies' performance, it is essential to presume that stock markets are technically efficient in transforming the available information to indicate the value of the companies.

4.2.3 Return on Assets as a Measure of Firm Performance

The Return on Assets ratio has also been utilised widely in previous research as a measure of firm profitability or firm performance (Deloof, 2003; Maury and Pajuste, 2005; Li et al., 2016; Dary and James, 2019). ROA prevents the potential distortion generated by financial strategies such as artificially maintaining a good level of return to shareholders and concealing a decline in companies' performance. Thus, ROA captures whether a company can generate sufficient return on assets instead of only presenting robust return on sales (Hagel, Brown and Davison, 2010). In addition, ROA indicates a company's ability in finding attractive opportunities related to their assets and is an important determinant of growth opportunities and economic growth (Dary and James, 2019). Hence, ROA is not a perfect measurement; however, it is the most efficient, widely available method to evaluate corporate performance compared to the Return on Equity (ROE) ratio that ignores the impacts of leverage and provides an incomplete view of companies' performance. Moreover, ROA is a backward indicator, as its route, provides perception in the quality of previous managers' decisions and encourages testing the basic decisions and their hypotheses (Hagel et al., 2013).

Yates and Firer (1997) argue that the variance in ROA reflects the volatility of earnings and can be a better financial ratio indication of the future firm performance as a guide to investors. Additionally, ROA and the volatility of these returns provide a significant explanation of the perceived risk and recognised as indicators for quality management. Nonetheless Maury and Pajuste (2005)

examine the influence of multiple shareholders on firm valuation measured by Tobin's Q and ROA, find that equal allocation of large block-holders votes has a positive influence on firm value. They also argue that Tobin's Q and ROA are the main measures of firm performance and they provide similar results, however, some ROA parameter estimates are less significant. Likewise, Maury and Pajuste (2005) examine the impact of trade credit investment on firm performance measured by both Tobin's Q as a market-based measure and ROA as a non-market measure for listed agro-food companies in the US from 2001 to 2014. They find that trade credit investments positively influence firm value utilising both measures.

4.2.4 Value Relevance and Firm Valuation

The market efficiency hypothesis assumes that firm value reflects the current value of the anticipated value of future cash flows that decrease at a suitable risk-adjusted return (Kothari, 2001). Hence, the accounting amount could be significant for the users of financial information, whether this amount is related to the current company's stock market value or reflects future cash flows. This is due to a significant relationship between the accounting amount and current stock market value of a company with estimated future cash flows provides an explanation to measure firm value based on a company's profitability and performance. Thus, this amount could be beneficial to enhance investors' decisions in valuing companies' equity and can be defined as value relevant (Barth et al., 2001; Kothari, 2001).

Therefore, the main central point of value relevant literature is to determine the usefulness of accounting amount in providing reliable information that is relevant for companies' valuation. This can be achieved by implementing various valuation approaches to examine the relationship between the accounting amount and a specific benchmark variable that reflects stock prices (Barth et al., 2001; Holthausen and Watts, 2001).

The aim of value relevance studies is to examine the relevance of accounting amount and the reliability as indicated in share prices. The share prices can be an indicator of the accounting amount if both reliability and relevance are correlated,

which are the two main criteria and objectives used by FASB as defined in its conceptual framework. The conceptual framework articulates that the accounting information is relevant if it can make a difference to the decisions of the financial statement users and it is reliable if it represents what it aims to represent (Barth, 2000; IASB, 2018, para 2.4).

To conclude that the main aim of value relevance studies is to empirically examine the relevance and reliability of accounting amount in presenting beneficial information that can help users in their companies' valuation. The accounting amount is deemed as value relevant if it relates to some value measures such as stock price or future cash flows (Barth, 2000). Whilst, considering the stock prices as a standard to examine the value relevance of accounting amount, the capital market should be assumed as an efficient in providing information that reflects firm value.

4.3 Tax Minimisation, Corporate Governance and Firm Value

Tax minimisation is linked to the principles of social responsibility that aim to offer the benefits to all stakeholders, rather than simply fulfilling the demands of the regulations and manipulating the rules to increase shareholder wealth or managerial interests (Hoi et al., 2013). However, tax minimisation is a creative activity that may lead to the prevention of exaggerated company tax payments, whilst considering the alignment with regulation and legislation. The future horizon of tax minimisation is to achieve the optimum level of tax benefit at acceptable tax risk, taking into account social responsibility and related ethical issues. In his famous quote, Hand, the judge (1947) explains an approach for identifying tax liability in cases of carelessness in court case decision the United States vs., Carrol Towing co. His interpretations of the complicated internal revenue codes have been influenced as examples to distinguish between personal and corporate tax.

> "*Over and over again, courts have said that there is nothing sinister in so arranging one's affairs as to keep taxes as low as possible. Everybody does so, rich or poor; and all do right, for nobody owes any public duty to pay more than the law demands: taxes are enforced exactions, not voluntary*

contributions. To demand more in the name of morals is mere cant." (Judge Learned Hand, 1947).

Tax minimisation is a controversial subject and is one in which companies must pay their contribution to society and play their role as a matter of morality and social responsibility. On the other hand, managers should be knowledgeable in tax minimisation to play an important role in drawing up a suitable method of tax minimisation that coincides with the business plan to utilise the financial resources in reinvestment strategy decisions. In contrast, tax authorities should consider the priority of the nation and the wellbeing of its citizens now and for future generations (Manabat, 2016).

Desai and Dharmapala (2009) examine the impact of book-tax gaps on the valuation of U.S companies and argue that tax minimisation advantages do not appear to be recognised by investors in the case of companies with a high level of governance. However, companies with a low level of governance seem to engage in managerial diversion (the act of diverting a company's resources to private benefit) through the aggressiveness of their tax strategy. Nevertheless, in studying the relationship between institutional differences and the use of tax havens, Bennedsen and Zeume (2015) find that companies with a higher corporate tax rate and powerful corporate governance are more likely to use tax havens, even where controls exist for economic advancement. It is obvious that when the average income tax rate is high, tax savings are valuable; what is more, seizure requires more complex systems at the point when corporate governance is high. Therefore, the purpose of engaging in tax minimisation activity goes beyond tax saving to the entrenchment purpose, which relates to firm complexity, and may reduce shareholder value.

Chen et al. (2010), in explaining how ownership structure and corporate governance affect a firm's tax minimisation behaviour, state that companies with institutional shareholders rely less on tax minimisation activities if they perceive that these activities advocate managerial entrenchment and increase opacity. Thus, the long-term institutional shareholders affect the level of tax minimisation activities in poorly governed companies and is applied as a process to avoid

managerial entrenchment and prohibit the use of tax minimisation for rent diversions (Moser, 2013).

Hanlon and Heitzman (2010) examine the relationship between tax minimisation and ownership structures that generate agency costs and find no obvious explanation for the changes in tax minimisation in the literature. They call for further investigation of the agency costs and ownership structure and their impact on tax minimisation by accounting researchers. Theoretically, tax minimisation increases firm value and promotes shareholder wealth. However, companies with institutional ownership tend to discourage tax minimisation decisions in order to prevent managerial opportunism and information opacity.

Kim et al. (2011) investigated a large sample of US companies from 1995 to 2008 while studying the relationship between tax minimisation and the risk of the future share price crash. They find that tax minimisation makes it easier to withhold bad news for long periods; however, on the release of the accumulated bad news the resulting outcome leads to stock price crashes. It could therefore be argued that concealment policies are detrimental to firm value and that the requirement of the UK corporate governance code for transparency should be observed, thereby better serving all interests.

This result aligns with the view that tax minimisation encourages managerial entrenchment, and discourages new accumulation for a period of time, by furnishing instruments and rationalisation for these behaviours (Chen et al., 2010; Desai and Dharmapala, 2009). In addition, they explain that there is alleviation, in that positive relationships exist between tax minimisation and the risk of stock price crash in the case of companies with robust outside control systems like high analyst coverage, high institutional ownership and powerful takeover threat. This resonates with the findings of Hanlon and Slemrod (2009) who state that stock markets react negatively towards news related to companies' engagement in tax minimisation; however, this negativity attenuates with strong corporate governance. Blaufus et al. (2016), examine tax minimisation and stock price reactions for 139 tax news items concerning large multinational companies in Germany for 2013-2014. In distinguishing between tax minimisation and tax evasion news, they found that tax minimisation news promoted positive

cumulative abnormal returns to 0.54%. They explained that focusing on tax minimisation news with efficient tax saving raised the cumulative abnormal returns to 0.75%. This indicates that shareholders value tax minimisation activities and confirms that managers are acting positively in shareholders' interest. Furthermore, shareholders perceive a positive reputation resulting from tax minimisation engagement. This highlights the remarkable positive reaction towards tax minimisation news when the reputation of companies is high.

In alignment with the evidence that corporate governance moderates the relationship between tax minimisation and firm value, Li et al. (2016), investigate whether the variety of firm board independence levels that results from board reforms demonstrates the extent of tax minimisation activities adopted by companies. They find that board reforms comprising board and audit committee independence, and reforms, which isolate the roles of board chairman and chief executive, reduce the level of tax minimisation. When insufficient discipline is imposed on managers, it encourages them to play safely, avoiding projects which cost them more effort to prevent underlying risks. On the other hand, when sufficient discipline is imposed, this encourages managers to engage in more effort and more risky projects, with consequently more value to tax minimisation activities (Armstrong et al, 2015). Examining the relationship between tax minimisation and firm value with respect to board reforms, they find corporate governance has a strong impact through board reforms, which leads to a significant positive relationship between tax minimisation and firm value. They explain that board reforms reduce agency problems relating to opportunistic tax minimisation engagement, which enhances positive association between tax minimisation and firm value, as consistent with (Desai and Dharmapala, 2009; Desai and Dharmapala, 2005; Desai and Dharmapala, 2006).

These studies advocate the positive effect of tax minimisation on firm value and perceive it as an enhancement of shareholders' wealth in the context of corporate governance. This activity is compliant with relevant codes and legislation, despite the defeat of the ethical perspective in determining such a strategy (Davies, 2015). This positive effect of the minimising of tax involves various risks, which reverses the positive factor of its activity. Blaufus et al. (2016), find that market response differs according to tax related risks, causing a decline in the positive

reaction to tax minimisation news when the level of company's tax risk is high. However, the reaction to tax minimisation news is remarkably positive for companies with high reputations (measured by advertising expenses and media coverage). In addition, the moderation effect of corporate governance in this study does not appear to be based on stock price reactions to tax minimisation news. Moreover, they find that tax minimisation does not incur significant agency costs. Similarly, when Huesecken et al. (2016), study the capital market reaction towards tax minimisation in Luxleaks events[12] for a specific period of time, they do not find any relationship between news disclosure and potential penalties' risk, with separation of reputation risk as the main reason for the negative market response. In line with that, Desai and Dharmapala (2009) emphasise that the positive market response can be derived from strong corporate governance. Wang (2011) documents this positive reaction of the market is weakened when transparency is reduced.

This study focuses on the UK listed companies in particular the constituents of the FTSE 350 index, as those companies have to obey the same regulations in disclosing the information related to tax and corporate governance in their annual report. Additionally, those companies have considerable capacity to engage in long run tax minimisation. This study, limited to the period of 2014 - 2016, when the UK corporate tax rate reduced to 21% in 2014 and 20% 2016, seeks to investigate whether this reduction in tax rate has any impact on BTDs and whether BTDs in this period has any effect on firm value.

The above-stated predictions and assumptions of this research are based on two different theories, one each from taxation and corporate governance: The Scholes-Wolfson framework (1992) and agency theory (Jensen and Meckling, 1976). The Scholes and Wolfson model calls decision makers to take into consideration three vital concepts of effective tax minimisation all of which are contract parties namely managers, shareholders and other stakeholders; furthermore all implicit and explicit taxes and all costs (financial reporting, agency) are relevant (Scholes and Wolfson, 1992). They go on to state that companies may defer profit to

[12] In November 2014, hundreds of advance tax rulings information related to multinational companies was published by the International Consortium, Investigative Journalists. This unexpected announcement of confidential tax information was publicly called the Luxembourg Leaks (Luxleaks) event.

anticipate in the period of tax rate declines using different methods, however, this profit shifting strategy can be applied based on the consideration of the specific time of the year. In term of all parties, companies in their tax minimisation strategy cannot reduce tax without impacting other organisational objectives (Scholes et al., 2016). However, some stakeholders' reaction may be positive towards engagement in tax minimisation if this activity increases after-tax return, or in a worst scenario, the reaction will not be negative (Hanlon and Slemrod, 2009). Another view to consider is that some stakeholders appreciate and have high regard for tax minimisation, others do not, the result of which may make the effect on companies' reputation equal zero (Rego and Wilson, 2012). In the context of total taxes payable and total related costs, managers should consider those competing views of key stakeholders when they engage in tax activity to achieve the optimal goal of tax minimisation that results in the maximising of after-tax cash flow. In this instance managers should balance between the benefits and the costs that include in tax minimisation to prevent the reputation risk that underlying in engaging in tax reduction (Gallemore et al., 2014).

In addition, managers need also to consider the principal-agent dilemma as tax costs. This dilemma arises from the split between ownership and control (Jensen and Meckling, 1976), and conflicts of objectives and information asymmetry between the ownership party and the control party that causes the absence of tax minimisation information for shareholders. This absence may affect shareholders' valuation to the tax risk and prevent tax authorities from detecting this activity. Therefore, this scenario could result in managerial opportunism and transfer the benefits to managers instead of shareholders (Desai and Dharmapala, 2009). Jensen and Meckling, (1976) in their paper concerning agency theory explain that risk as a conflict of interest between principle and agent that occurs as a result of the interest conflict between the objectives of both parties.

Agency theory posits that shareholders incur agency cost to align the conflict of interests between managers and shareholders that appear as a result of the complexity of the contract setting between the two parties (Jensen and Meckling, 1976) and the contradictory objectives of the parties. Thus, the negative valuation of tax minimisation by shareholders could vary if there is an effective corporate governance regime as demonstrated by the mechanisms, adoption and adherence

to an appropriate code. The presence of these mechanisms could affect tax minimisation decisions and provide some information to support shareholders in assessing tax minimisation strategy (Desai and Dharmapala, 2009).

The Scholes-Wolfson and agency theories are considered to provide insight into basic justifications and predictions in respect of the purpose of this research. This examines the relationship between different methods of tax minimisation and firm value whilst considering corporate governance mechanisms as a moderating role of this relationship. The intricacies of this relationship are considered from two perspectives. First, the relationship between tax minimisation and firm value is tested to obtain a deeper perception inside shareholder's valuation of the different methods of tax minimisation. Second, the relationship between tax minimisation, firm value and corporate governance are examined to better understand the impact of corporate governance in the first relationship.

The table below summarises some of the key theories, models and frameworks contained within the literature pertaining to tax minimisation, corporate governance, and firm value, in descending chronological order.

Table 0-1: Summarises Some Key Theories, Models and Frameworks.

Authors and Scholars	Sample	Independent Variable	Dependent Variable	Corporate Governance Measure	Findings/ Conclusions
Blaufus, Mohlmann, Schwabe, (2016)	Online News archive (2003-2014)	Setting dummy variable for Tax avoidance news, Reputation risk (advertising), and family firm dummy	Cumulative abnormal Return (total shareholder returns obtained from DataStream, using market model	_____	Positive abnormal return for tax avoidance news. There is no reputation effect of T.M, but positive Market reaction to T.M news is related to high reputation risk
Huesecken et al, (2016)	103 MNC's news revealed on 5/11/2014 by the International consortium of Investigative Journalists ICIJ	Accumulated abnormal returns: Market model and adjusted model	Tm. Measured by Cash effective tax rate (tax paid/pre-tax income), and TM measured by total income taxes/special items adjusted pre-tax income	_____	Significant positive accumulated returns for firms referred to more information about T.M and boosted tax certainty, exceeds the negative effect of potential reputation costs.
Li et al, (2016)	1990-2012 companies in countries experiencing board reforms from the OECD	Tax on pre-tax earnings measured at the statutory rate minus taxes actually paid expresses as a pre-tax earnings percentage.	Firm value measured by Tobin's q (market equity value+ book liabilities value (-deferred tax liability)/book assets value	Board reform components: audit committee, board and auditor independence, the separation of the chairman and CEO position	A significant decrease in TM. After major board reforms. Negative (positive) relationship between TM. And firm value before (after) board reform.

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Armstrong et al., (2015)	All companies listed in Compustat 2007-2011 using quantile regression	Managerial incentives and board characteristics	TM measures by two proxies; EndFin48Bal (the ending balance of the firm's uncertain tax benefit) and TAETR (the difference between the firm's three-year average GAAP effective tax rate)	Changing in the value of equity holding, Financial sophisticated and independence of board	A positive relationship between financial development and board independent for low tax minimisation and negative relation for high level of tax minimisation.
Abdul Wahab and Holland, (2012)	UK companies listed in LSE 2005-2007	TM=firm's STR- ETR, TM components: tax loses, permanent diff., temporary diff, FOR tax differentials, unclassified items	Market value of equity	Ownership structure, board structure, compensation structure	Shareholders do not value TM, and negative relationship between TM and FV
Chen et al., (2010)	US firms 1996-2000	Firm value: natural log of equity and market to book ratio.	ETR, CETR, book tax gap	Dummy of founding family member holding a position in top, dummy of family blockholder	Firm value has been measured to control the substantial effect on the relationship between tax minimisation and corporate governance.
Desai and Dharmapala, (2009)	US Firms 1993-2001	Tax minimisation: Scaled book tax difference, interaction variables (Institutional ownership and book tax difference)	Tobin's Q	Institutional ownership	No relationship between firm value and tax minimisation without institutional ownership variable. Significant relationship between TM and firm value in firms with high institutional ownership. Positive relationship between interaction variables with firm value.

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Hanlon and Slemrod, (2009)	US firms 1/1/1990-1/9/2004	News about engaging in tax minimisation.	Cumulative abnormal return	Shareholder rights index	Share price decreases when there is news about engaging in tax minimisation. This decline is attenuated in companies perceived as less tax aggressive

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From the table above, the apparent conclusion is that theoretically, tax minimisation increases firm value, but this result is more significant in the presence of strong corporate governance. Considering corporate governance, the obvious question is what influences it? The answer is that many factors may affect corporate governance and in consequence affect the relationship between tax minimisation and firm value. Board composition as an internal mechanism could affect the level of tax minimisation engagement by a company; the quality and quantity of information disclosure as well as institutional ownership monitoring role, as external mechanisms, can have a vital impact on tax minimisation activities, along with capital market reaction towards this disclosure. Institutional context, and managers' characteristics and behaviour, determine their engagement in aggressive tax minimisation.

To summarise, the hypotheses of this research built on two assumptions based on the reviewed literature, first there is a relationship between different tax minimisation components and firm value, and second, this relationship is moderated by internal and external corporate governance mechanisms. This is explained in detail in chapter 5.

4.4 Conclusion

This chapter summarises the current knowledge within the literature related to the topic of tax minimisation and corporate governance mechanisms on firm value. This chapter begins with identifying different firm value measurements and supports this explanation with evidence from the literature. Firm value can be measured either though market measurement which is Tobin's Q and non-market measurement (firm performance) utilising ROA, which is identified by some scholar as firm performance. The following section then provides a deeper understanding of the impact of both tax minimisation and corporate governance mechanisms on firm value. The next chapter underpins this institutional knowledge to develop the hypotheses of this research.

CHAPTER FIVE: RESEARCH PHILOSOPHY AND HYPOTHESES DEVELOPMENT

5.1 Introduction

This chapter addresses the research methodology proposed for this study. It begins with a discussion related to philosophical considerations, the research approach and strategy. The chapter further outlines the author's personal philosophical perspectives related to ontology, epistemology, axiology and the research paradigm in order to justify and underpin the methodology adopted and the reasons why this research is appropriate for the particular paradigm in question. The last section considers hypothesis development and the means by which that will be tested and how the hypotheses connect to the research model.

5.2 Research Philosophy

5.2.1 Defining the Research Philosophy

To grasp a fundamental understanding behind a given research philosophy it is necessary to consider the research paradigm. Regards to Cohen et al. (2000), a research paradigm defines the wider view through which beliefs, perception and understanding of different theories and applications are utilised to undertake the research can be fully understood. While it cannot be said to be a methodology, it is however a philosophy that guides and steers the means by which the research will be conducted (Gliner and Morgan, 2000). Expanding on this, Sayer (2011: P.16) writes:

> *"One of the challenges of social science is to explain social phenomena in a way which acknowledges the importance of social structures and contexts without ignoring their ethical implications"*.

Research philosophy describes the researcher's unique world view and the vital assumptions the researcher makes about the nature of reality. Those assumptions inform and direct the research methodology used to conduct a research (Saunders et al., 2012). Both Howell (2013) and Saunders, et al. (2012) identify four types

of research assumptions within two broad categories, firstly, theory philosophy (epistemology and ontology) and secondly, research paradigms (methodology and methods).

5.2.2 Ontology

Philosophy in its widest sense is concerned with the nature of reality and the individual's perceptions of that reality, whether this reality is an objective external truth or alternatively, a subjective fabrication of our imagination (Burrell and Morgan 1979). It is the beliefs held by a researcher about the nature of reality and its association with individual situations that is the backbone and the cornerstone that supports our assumptions. Ontology in social science can be considered as binary groups of opposing beliefs, namely those of Objectivism and Subjectivism.

Objectivism occupies a reality where the world has substantial structure or templates (Seibt 2018, Oats 2012). This reality is free of the beliefs and perceptions relating to the behaviours of social actors (Howell 2013, Saunders et al. 2012). In contrast, Subjectivism considers reality existing as a consequence of social actors' perceptions and beliefs. Thus, for the subjectivist researcher to understand the nature of reality there is a prerequisite to study the details of the subject that caused the phenomena and incidents (Saunders et al. 2012).

5.2.3 Epistemology

Epistemology considers the validity of evidence and knowledge that endorses reality and explores the causality between observable phenomena and the interpretations of meaning. Epistemology is concerned with the study and development of knowledge to distinguish between opinions and the justified belief. In social sciences, for example, epistemology considers that researcher undertakes a research project within the limits of a specific ontology that includes some of philosophical assumptions about the basic knowledge and its communication between individuals (Creswell, 2013; Burrell and Morgan, 1979). Epistemology is all about accessing specific knowledge required by executives in order to take a decision and the efficiency of the information system in providing this knowledge (Mitroff and Mason, 1982).

Epistemological assumptions can be categorised in two opposing elements: Positivism and non-positivism in the context of the competing ontologies described earlier (Oats, 2012, Easterby-Smith et al. 2012). Positivist researchers believe that an external reality exists and considers reality as an objective entity; the corollary is that hypotheses are developed from existing theories, examining the causality, effects and relationships through observation and measurement using "scientific" experiment (Howell, 2013). Non-positivism, understands reality through the study of conscious experience that is the result of the unique manner in which the individual will perceive activity through actions and reactions (Bhattacherjee, 2012).

5.2.4 Axiology

Axiology considers the value and beliefs pertaining to individuals and, with regard to the nature of any research, will determine specifically whether the individual allows his or her values to impinge upon the process and outcome (Saunders et al. 2012). Sayer (2011) takes up this point and discusses ethical theories that consider real-life situations and explains social phenomena through merging ethics with social science, which relate to social structures applicable to everyday life. The positivist perceives the world as external reality and as such endeavours to conduct value-free research therefore asserting the independence of the researcher such as would be the case of the "white gloved" scientist. The alternative phenomenological position considers the researcher's axiology as being value laden, when, for example, he or she interviews a subject there is an engagement and an involvement that is not and cannot be totally detached.

5.3 Methodology and Methods

Choosing the research framework is the precursor to determining a methodology and then adopting appropriate methods. The framework explains the approaches used to emphasise the credibility of the research findings, through contextualising theory within practice. Hence, the philosophical assumptions and the researcher's positionality are vital for the methodology used within the research (Jackson, 2013).

The philosophical assumptions and the stance of the researcher are considered in the foregoing section of this study. The researcher's understanding of the nature of reality, acceptable knowledge, and his or her values have a significant effect on the research design and methodology.

5.4 Author's Assumptions

The author's ontological and epistemological stance is that of positivism, and the nature of this study is consistent with those positions as it concentrates upon the relationship between tax minimisation and firm value and therefore the data collection is concerned with an observable reality. The nature of reality in this research is that the resources are external to the procedure of data collection and empirical research. Tax minimisation issues and firm value already exist in firms. Thus, this research considers this reality in order to enhance a comprehensive perception of the relationship and improve the prediction of firm's future value. This research generates law-like generalisations in searching for associations and possibly causal relationships in the data. This research is conducted in a value-free context, where the data were collected from companies' websites and other different authoritative sources with the researcher remaining independent from the companies under observation.

In addition, the ontology relating to this research tends to be allied with realism, a view that argues that companies have a neutral existence and assumes that observing phenomena exclusively could inform the research with credible data. Hence, the phenomena of tax minimisation and firm value are observed externally free of executives and shareholders' perceptions and their individual actions are not examined. Also, as this study is value-free, so the relationship between tax minimisation and firm value is free of the influence of the research.

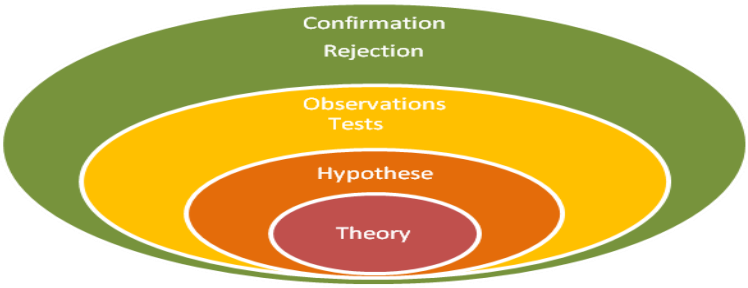
5.5 Research Approach

The appropriate selection of method and approach used to conduct a research study is germane in reaching both a definition of the research questions and reaching a defensible conclusion related to the findings of the research. The research approach can be defined of two types; firstly, the inductive approach and

secondly, the deductive approach. In the case of an inductive approach, the researcher begins by making an observation, and then he will be able to collect data from different sources. Based on the findings of his research, the researcher can develop a theory. The deductive approach is based on research conducted after developing hypotheses from different sources of literature, journals and academic papers. Based on the findings of these sources, the researcher then tests and support the underpinning theory (Alqunayeer and Zamir, 2015).

The research approach forms the action plan to address the questions posed in a research study. It starts from the problem definitions, and proceeds to the final stage, where a conclusion can be drawn. Several researchers see it as the plan, structure and strategy for investigating research problems/questions (Smith, 2011, Creswell, 2013, Naoum, 2013). A positivist ontology will invariably use a quantitative approach to address a research study (Fellows and Liu, 2015, Bryman, 2016, Newman and Benz, 1998) employing a systematic, controlled, empirical technique of examining data about natural phenomena. This approach best suits the underlying philosophical nature of this current study. The deductive approach follows the path shown below:

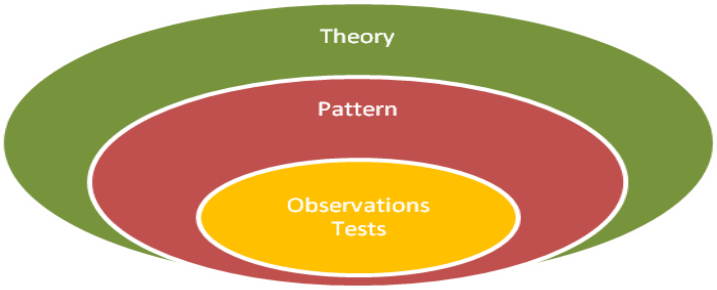
Figure 0-1: Deductive Approach



Source: Author

Inductive approach follows the path shown below:

Figure 0-2: Inductive Approach



Source: Author

Based on the nature of the research, the author concludes that the deductive approach is pertinent to this study and that such an approach is consistent with the philosophical stance adopted by the author and described earlier.

5.6 Research Paradigms

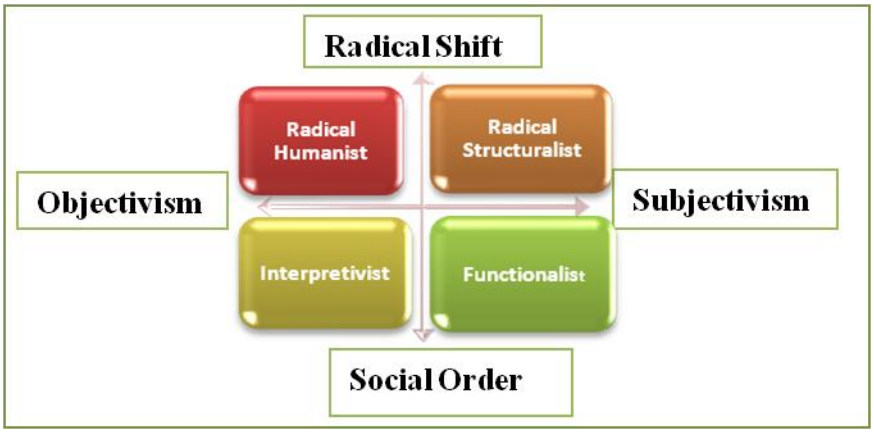
Paradigms are evident in almost every element of research as they reflect the researcher's choices of study. Paradigms can impact on the research study by identifying the subject and developing the questioning pattern to be linked to the research subject. Likewise, they affect the methods used in answering particular research questions and the way of interpreting the findings (Lukka, 2010). Collis and Hussey (2014) identify the paradigms as simulating the research process that progresses based on the researcher assumptions about the nature of knowledge and the way of conducting the research. The term paradigm has its origins in the Greek word *Paradeigma* meaning "pattern". The term paradigm was first used by Kuhn in 1962 to indicate a conceptual framework utilised by a group of scholars (Antwi and Hamza, 2015). This framework or paradigm equipped scientists with an appropriate model for investigating the phenomenon and resolving the problem (Kuhn, 2012). Therefore, the paradigm, according to Kuhn, indicates a research context that is combined with a bundle of values, beliefs, and assumption adopted by a group of researchers concerning the nature of the research and how it will be conducted. In short, it denotes a structure or a pattern framework of scientific thoughts and, values and assumptions.

Burrell and Morgan (1979) explain that researchers are required to make basic presumptions about the nature of society and the nature of social science, hence situate themselves upon a philosophical field as has been illustrated earlier. Furthermore, Burrell and Morgan (1979) distinguish four categories of research paradigms concerning the core assumptions, where the assumptions relate to the nature of social science can be at two different extremes: objectivism and subjectivism forms of ontology. Burrell and Morgan (1979) state that the nature of society can also be divided into fundamental two extremes: sociology of radical shift and social order (sociology of regulation).

As stated earlier, the ontological positions of the researcher lead to understandings of the world as consisting of social order, thus, the research patterns of events and behaviours coincide with a belief that this world can be studied through utilising an objective approach (Epistemology).
As mentioned in the previous paragraphs, this research is independent and value-free where the author's beliefs and opinions do not have any influence on the research, such, for example, as using standardised data collection methods for instant: survey, and secondary data. In this study, a functionalist paradigm is adopted. If, however, the researcher believes in the subjectivist interpretation with involvement of participants as the prevalent method of conducting a research the researcher will of necessity be applying subjective perspectives during interviewing or observing various participants and reuniting variations in their responses. This is known as the interpretive paradigm.

In Figure 5.3 below, "radical shift", proposes that the researcher strives to understand and instigate changes to apply an objective approach and employ a radical structuralist paradigm. However, understanding radical shift utilising subjective views of participants leads to the adoption of a radical humanism paradigm (Bhattacherjee, 2012). The figure 5.3 shows the four different paradigms suggested by Burrell and Morgan (1979).

Figure 0-3: Sociological Paradigms and Organisational Analysis



Source: Burrell and Morgan (1979)

On the other hand, Easterby-Smith et al. (2012) portray the contradicting traditions of conducting social science research in the positivist and social constructionist traditions, which are frequently elevated to a polarised stereotype by conflicting ideologies. Moreover, the Easterby-Smith et al. (2012) definition of constructionism considers as one of the approaches that has been indicated by Habermas (1970) as interpretive methods and a paradigm which developed in a way to respond to positivism. Easterby-Smith et al. (2012: p.58) define interpretive methods as,

> "*The ways that people make sense of the world especially through sharing their experiences with others*".

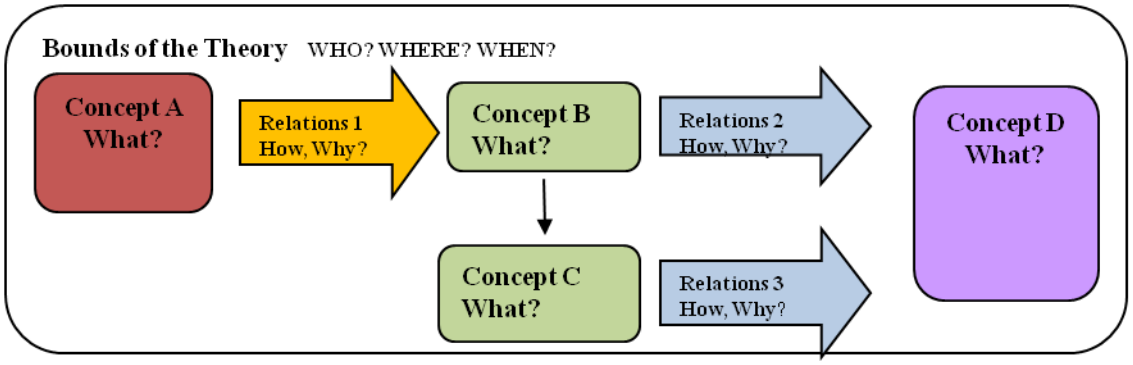
According to Burrell and Morgan's models (1979), this study conducts a functional model, which examines the relationship between tax minimisation components and firm value measured by Tobin's Q and return on assets (ROA) (Social Order), whilst investigating the rule of corporate governance on this relationship (Accounting rule), to evaluate the efficiency of the existing tax compliance regulation (efficient regulations). These criteria take into account a proof of evidence from stock market to create neutrality (objective proof). Functionalists consider social order is understood by their components, thus, attempts to divide a dilemma into small elements then examine one or more

elements in more details applying objectivist techniques for example a survey and experiment (Bhattacherjee, 2012).

5.7 Theory

Theory demonstrates relationships between phenomena by outlining a form of generalisation comprising interrelated, definitions, assumptions, propositions and constructs (Grover, and Glazier, 1986; Teddlie, and Tashakkori, 2009; Kyungwon, 2013). Theory development is considered as a fundamental activity for scientific disciplines. Theory creates a core body of knowledge connected to significant questions in a subject of study and design disciplined boundaries (Pettigrew & Mckechnie, 2001; Kyungwon, 2013). Bacharach (1989) defines theory as a system of concepts and relationships between these concepts, which exhibit together a logical systematic and consistent explanation of a phenomenon of concern through a set of assumptions and boundary conditions. This evidences the proposition that logical thinking is a vital prerequisite of a given theory, which confirms that a theory is considered to be coherent and systematic. Thus, theory performs a fundamental role in expecting the outcomes of the relationships between different variables in quantitative research and provides basic justifications for practice in research methodology. According to Whetten (1989) theory can be defined as a complete if it includes four primary elements: What, When, How and a set of Who, Where and When elements together frame the subject of theory (Whetten, 1989). The table 5-1 and figure 5.4 below explain the theory in detail.

Figure 0-4: Elements of a Theory



Source: Whetten, (1989) designed by the author.

Table 0-1 Theory Elements

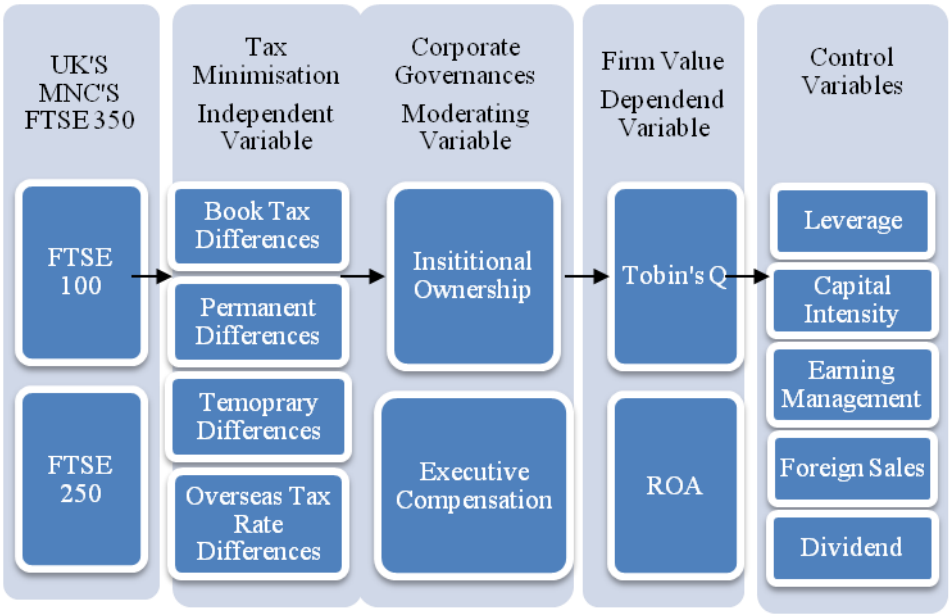
What	What are the concepts and variables that should be examined by the theory? This element explains all relevant concepts and variables that should be included in the examination and considers deleting the ones that do not add value to understand the phenomena.
How	How are these concepts and variables related? This process includes using arrows to link the boxes as shown in the figure 5-5 above, which adds order to the concepts through drawing patterns, which introduces causality
Why	Why these concepts and variables are related? This step is the most significant part of the theory, as it is required a justification of the concepts and variables selected and the relationship between them.
Who, where and when	Who is influenced by this theory? Where is this theory relevant? And when is this theory relevant. These factors set the limitations on the suggestions created from a theoretical paradigm, which create the boundaries of generalisation and form the scope of the theory.

Source: Whetten, (1989) designed by the author.

Applying these components on this study where the main variables are tax minimisation measured by book tax differences (BTDs), firm value measured by Tobin's Q and ROA, with the moderating role of corporate governance measured by institutional ownership, managerial ownership, executive remuneration (REM). The relationship that this study is examining is the impact of tax minimisation components on Tobin's Q and ROA, and considering corporate governance mechanisms as a moderating factor in this relationship. This is to examine

whether investors distinguish between the different components of BTDs in their company's valuation in order to make an investment decision. The following framework will help to identify how the tax minimisation measured by the book tax differences and firm value differs across the alternative methods in FTSE 350. To address this, the study explores different methods and notices the effect of these methods on the firm value. Moreover, it shows the role is played by the corporate governance mechanisms in moderating the relationship between tax minimisation and firm value.

Figure 0-5: Book Tax Differences, Corporate Governance and Firm Value



Source: The Author

5.8 Research Design

Research designs can be of two forms, and these forms are exploratory and conclusive research designs. In exploratory research design, the researcher attempts to examine particular scopes of research and there will not be defined answers to the research questions that were asked. Conclusive research; however, can be of two different forms; descriptive and causal. In descriptive research design, the researcher explains the different influences and reasons in the scope, which was selected in the field of the research. In contrast, in causal research design, the researcher can explore the cause and effect and the relationships

involved in the dellima that was taken for conducting the research project (Alrashidi and Phan, 2015). The limitation of causal research is that researchers are unable to study true, randomised natural tests; they rely instead on non- or semi- test examination methods. The drawbacks of those methods increase the concern over the extent of inferring causality from an accounting study field. Positivist research comprises clear attention to and reporting of the subjective decisions and judgments a researcher faces in developing causal explications and making research-design options. Those judgments and decisions could omit alternative possible explications to be considered, and could decline the evidence collected those conflicts with those alternatives. This reveals vital limitations on the validation of the inferences achieved. Informing those limitations and reporting the subjectivist nature of developing and validating causal explications as an inevitable factor, may enhance the objectivist nature of a research (Luft and Shields, 2014).

For the purpose of this research, the descriptive research design is selected in which the data is collected from different sources so that the research questions can be adequately answered.

5.9 Hypotheses

The hypotheses of this research set to examine the relationship between tax minimisation components and different variables of firm value and also, considering both agency theory and The Scholes-Wolfson framework (1992) as explained in the previous chapters (2&4). Also, the hypotheses used within this research have been developed based on the perception gained from the literature review.

5.9.1 Tax Minimisation and Firm Value

The literature review includes prior research concerning shareholders' valuation of tax minimisation decisions and the various findings accordingly. There is a mixed result that represents this relationship that is either positive or negative depending on shareholders' perception and expectation of tax minimisation. For example, some studies (Drake, et al, 2019; Inger, 2014) state that the positive relationship between tax minimisation and firm value might be as a result of the

shareholder's expectation of future cash flows generated by tax reduction. Also, shareholders value the company's attempt to reduce tax expense and prefer consistent holding pre-tax income, while others find the negative relationship due to shareholders' perception to tax as a risk activity, which could underestimate the expected future cash savings generated by tax reduction (Desai and Dharmapala, 2009; Hill et al, 2013; Drake et al, 2019). Therefore, prior research has concluded that tax minimisation is connected with firm valuation in unexpected directions. Furthermore, the author's motivations in carrying out this study will examine the relationship within the FTSE350 companies and then separate its components into two indices namely the FTSE100 and FTSE250. Thus, the hypotheses as below:

Hypothesis 1 (H1): There is a significant relationship between book tax differences components and firm value.

The FTSE350 consists of FTSE100 and FTSE250, the result of the relationship between tax minimisation components and firm value could be in different directions, due to FTSE 100 comprises of the biggest 100 companies in the market, which could result in different findings. Therefore, it could show persistent tax minimisation activity because of persistent earnings in these companies in a long run. Whilst, FTSE 250 comprises of the medium size companies in term of their assets and earnings. Those companies are not expected to provide persistent earnings for a long period. Thus, it is unlikely to present a long run tax minimisation activity; due to tax reduction costs could be higher than the company's ability (Dyreng et al, 2008). Regards to shareholders' perception on risks and benefits that associated with tax minimisation in FTSE350 and both FTSE 100 and FTSE 250, the next hypothesis examines the relationship in both indices separately to show whether the relationship in both indices have different results or not.

As discussed in chapter 2 that there are different sources of book tax differences resulting from the differences between both accounting and taxable incomes. These resources are temporary differences, which can be utilised as an evident for earnings managements and permanent differences which reflect tax minimisation activities by managers. This research examines the impact of these two types of book tax differences separately on firm value to achieve a better understanding of

their behaviour. Inger (2014) finds that shareholders in their valuation distinguish between different methods of tax saving of tax minimisation. This is because different method concerning different benefits and risks preference (Frank et al, 2009; Hill et al, 2013). Companies engage in permanent tax differences due to the non-conformance in financial and tax disclosure standard, which lead to two different factors. First, the presence of the association between tax minimisation components and firm value. Second, this relationship could arise as a result of shareholders perceives of companies' tax activity as the ability of leading tax saving strategy. In this, scenario shareholders positively value tax minimisation (Frank et al, 2009). According to temporary differences that generated from deferred tax expenses, could notify shareholders earnings qualities (Hanlon, 2005). Temporary difference is a timing difference, which may mirror an improvement in cash flow in the fiscal year when this method is conducted, however, this difference will be reverse in the year after, therefore, shareholders do not value temporary difference due to the temporary saving generated (Inger, 2014). In this instance, it can be conclude that permanent tax differences lead to increasing in firm value as a result of the positive valuation of shareholders, whilst, shareholders do not value temporary tax differences, therefore, temporary tax difference have no impact on firm value.

Hypothesis 1a1 (H1a1): There is a positive relationship between permanent tax differences and firm value in FTSE350 companies.

Hypothesis 1a2 (H1a2): There is a positive relationship between permanent tax differences and firm value in FTSE100 companies.

Hypothesis 1a3 (H1a3): There is a negative relationship between permanent tax differences and firm value FTSE 250 companies.

Hypothesis 1b1 (H2d): There is no relationship between temporary tax differences and firm value FTSE350 companies.

Hypothesis 1b2 (H2e): There is no relationship between temporary tax differences and firm value FTSE100 companies.

Hypothesis 1b3 (H2f): There is no relationship between temporary tax differences and firm value FTSE250 companies.

In addition, the negative valuation could be due to revealing the accrual of the residual tax expenses in deferred tax liability or via disclosing estimated tax liability on permanent reinvested earnings in US companies (Inger, 2014). Bryant-Kutcher, et al. (2012) prove the negative relationship between foreign effective tax rates and firm value demonstrating that tax rates differentials are not offsetting by other costs that are related to tax. While, Wilkie (1992) finds that firms encounter lower effective tax rates tolerate implicit taxes, and the negative relationship between overseas tax rate and pre-tax return indicates market frictions, error measurements or transaction costs restrain implicit taxes to not offset implicit taxes. Eiler and Kutcher (2014) examine the various possible determinants of detecting transparency that concerning the unrecognised deferred tax liability on permanently reinvested foreign earnings, which seizes two main issues; the capacity to measure tax and the possibility of opportunistic disclosure. Therefore, shareholders negatively react to the complexity in disclosing unrecognised deferred tax liability on permanent reinvested earnings. This could lead to extract that shareholder negatively value overseas investments.

Statutory tax rate difference refers to overseas taxable income that taxed at a different rate from the national statutory tax rate; Abdul Wahab and Holland (2015) find that the level of book tax differences persistence varies depend on the type of BTDs and industry. In addition, they state that STRDs have the highest persistence level, which is associated to tax minimisation activities.

Hypothesis 1c1 (H2g): There is a positive relationship between overseas statutory tax rate differences and firm value in FTSE 350 companies.

Hypothesis 1c2 (H2g): There is a positive relationship between overseas statutory tax rate differences and firm value in FTSE100 companies.

Hypothesis 1c3 (H2h): There is a negative relationship between overseas statutory tax rate differences and firm value in FTSE250 companies.

5.9.2 Tax minimisation, Firm Value and Corporate Governance

This section seeks to explain the moderating role that corporate governance mechanisms play in the relationship between tax minimisation and firm value. This relationship between the three characteristics is critical as corporate governance mechanisms can provide a better explanation of the relationship between the other two characteristics (Desai and Dharmapala, 2009).

Prior research shows mixed results concerning the relationship between the three characteristics as shown in the literature review chapter (Desai and Dhramapala, 2006; Desai and Dhramapala, 2009; Hanlon and Heitzman, 2010; Abdul Wahab and Holland, 2012, Inger, 2014). Minnick and Noga (2010) state that there is association between tax minimisation and corporate governance, however, the results of this association in the literature are not consistent and depend on the management position that being investigated.

Hypothesis 2 (H2): Corporate governance has a moderating impact on the relationship between book tax differences and firm value.

This study utilises two mechanisms of corporate governance institutional ownership as external component and top executive remuneration as internal component. These two mechanisms of corporate governance are hypothesised to moderate the relationship between tax minimisation and firm value on FTSE 350 and provide a deeper explanation of the relationship by focusing on the two groups namely FTSE 100 and FTSE 250.

Hypothesis 2a1 (H2a1): The relationship between book tax differences components; permanent differences, temporary differences and firm value are moderated by the levels of institutional ownership in the FTSE350 companies.

Hypothesis 2a2 (H2a2): The relationship between book tax differences components; permanent differences, temporary differences and firm value are moderated by the levels of institutional ownership in the FTSE100 companies.

Hypothesis 2a3 (H2a3): The relationship between book tax differences components; permanent differences, temporary differences and firm value are moderated by the levels of institutional ownership in the FTSE250 companies.

Desai and Dharmapala (2009) examine the association between tax minimisation and high managerial incentives for US companies during the period between 1993 and 2001. They find a negative relationship between managers' remuneration incentives and tax minimisation. This is because shareholders perceive tax minimisation as a mechanism of increasing managers' opportunism and increasing their interest; therefore, shareholders pursue managers to reduce tax minimisation activities. This negative relationship is driven mainly from companies that classified as poorly governed companies. In contrast, Minnick and Noga (2010) provide evidence that incentive remuneration provides the incentive to increase performance in the long-term. They suggest that managerial incentive compensation encourage managers to invest in long term tax minimisation, which leads to improve companies' performance and increase shareholders value. Besides, they refer to tax minimisation as better tax management and find it is positively associated with higher shareholders return.

To test the hypotheses concerning the moderating impacts of executive remuneration on the relationship between tax minimisation and firm value, the hypotheses that are tested are as follows:

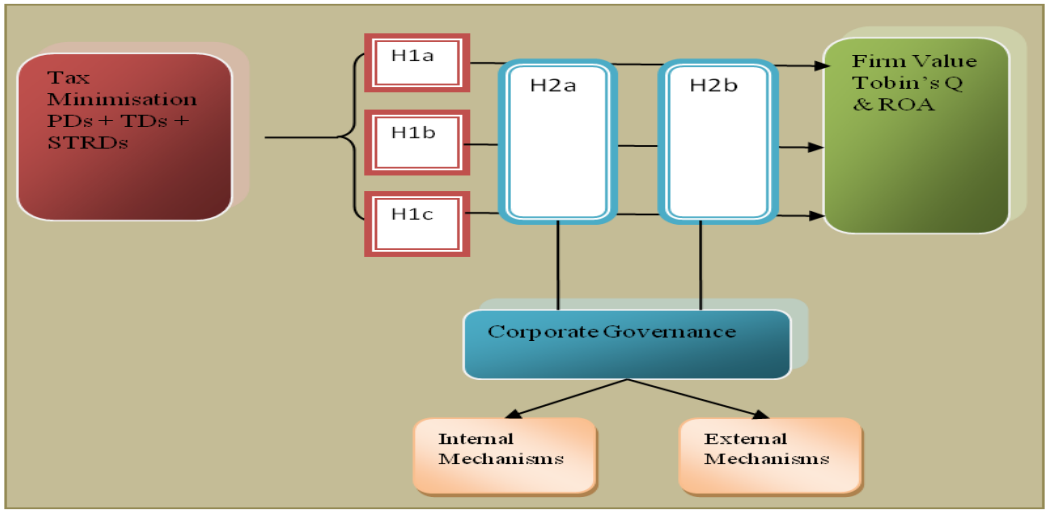
Hypothesis 2b1 (H2b1): The relationship between book tax differences components; permanent differences, temporary differences and statutory tax rate differences and firm value is moderated by the levels of executive remuneration in the FTSE350 companies.

Hypothesis 2b2 (H2b2): The relationship between book tax differences components; permanent differences, temporary differences and statutory tax rate differences and firm value is moderated by the levels of executive remuneration in the FTSE100 companies.

Hypothesis 2b3 (H2b3): The relationship between book tax differences components; permanent differences, temporary differences and statutory tax rate differences and firm value is not moderated by the levels of executive remuneration in the FTSE250 companies.

The findings of the literature review lead the author to develop the hypotheses and conclude that the salient elements related to tax minimisation and firm value are balanced between the cost and benefit of firm value and internal drivers of corporate governance together with external procedures and pressures as shown in the figure below.

Figure 0-6: Research Model



Source: Author

From the model above it can be summarising that tax minimisation activities in some cases result in a significant tax saving (benefit), which increases firm value, and promotes shareholders' wealth. However, such activities have underlying costs such as potential reputation cost, implicit costs, customers' and other stakeholders' negative responses, agency costs, and the penalties of detecting tax saving. Therefore, there is an ambiguity in this relationship, which leads this study to investigate it. Whilst some of the methods of tax minimisation create permanent tax savings such as share option tax benefits and residual of foreign earnings tax benefits; other tax reduction methods create temporary savings such as accelerated tax depreciation. The benefit of permanent saving to shareholders is

more significant than temporary saving (Koester, 2011). Also, the benefits of tax minimisation depend on the application costs, and those costs differ according to the complexity of the tax minimisation strategy (Inger, 2014).

Corporate governance will be examined along with the relationship between tax minimisation and firm value. Corporate governance affects both internal and external mechanisms. Demirag et al. (2000) state that corporate governance mechanisms comprise an internal mechanism which constitutes board composition, managerial ownership, and non-managerial ownership (with institutional ownership), while external mechanisms are a statutory audit, a corporate control market that often involves hostile takeovers, and the company's performance evaluated by the stock market. Prior research provides evidence that poor corporate governance weakens the positive impact of tax minimisation on firm value (Desai and Dharmapala, 2009, Wilson, 2009, Inger, 2012), since shareholders perceive that managers are working in their own interest. Moreover, in order to disguise tax minimisation methods from tax authorities, companies need to make financial statements more ambiguous. This ambiguity creates information asymmetry which eases the process of rerouting the benefits of tax minimisation to managers. Nevertheless, tax minimisation generated from share option deductions and accelerated depreciation are allowed by the tax authorities and fully acceptable by the law, therefore, they are not related to ambiguous information that leads to rerouting. Moreover, tax minimisation generated from the above-mentioned methods should not be discounted by investors in their valuations. Separating the components of tax minimisation within the heterogeneous valuation provides awareness of the reason behind the reduction in valuing tax minimisation among investors in poorly governed companies. To emphasise, this study concerns only tax minimisation components; permanent differences, temporary differences and deferred overseas tax rate differences and will not highlight the benefit and cost issues. Also, this study measures corporate governance by utilising institutional ownership and executive remuneration, so will not concern the whole internal and external mechanisms of corporate governance.

5.10 Conclusion

This chapter presents the research philosophy and research framework and explains the concepts of axiology, ontology, epistemology and research paradigm. It also, positions the author in the positivist realm and accordingly the authors' adoption of a quantitative approach, and an objective standpoint together with a value-free axiology.

This is followed by describing the process of deductive and inductive research and explaining the position of the study into the functionalist paradigm and deductive approach, as they are the most suitable methods to answer the research problems. Ultimately, this chapter shows the formulating of the approved hypotheses that will be tested in the chapter 6.

CHAPTER SIX: DATA COLLECTION, SAMPLE SIZE, AND VARIABLE MEASUREMENT

6.1 Introduction

This chapter describes the nature of the sample, the development of the estimation models and the variables conceptualisation. The chapter begins with a brief depiction of the sample selection and the provenance of data collection. The next section relates to the development of the estimation models used in testing the hypotheses. The estimation models are developed to underpin the research based on the Scholes-Wolfson framework, which has been variously adopted in value-related studies along with research into taxation (Bauman and Shaw, 2008; Abdul Wahab and Holland 2012, Ariff and Hashim, 2014). In addition, the book tax differences (BTDs), both conceptual and measured, developed by Abdul Wahab and Holland (2015) are included within this study. Furthermore, the chapter contains an extensive explanation of the measurement of the different variables used in this study and an extract of variables estimation is also mentioned in the appendices to present a clear picture about independent, dependent and control variables. Justification for the application of each estimation model features in this chapter.

The methodological contribution of this study is clarified using a range of approaches. Firstly, utilising a bespoke set of data, which is collected and subsequently calculated from companies' annual reports for the period under study. This set of data utilises the independent variables, namely book tax differences, temporary differences, permanent differences and overseas tax rate differences, as it is not available in readable format. The data under examination can provide evidence of the advantage of tax footnote information that is disclosed in the annual reports in forecasting the companies' future performance. The model is developed by considering BTDs, TDs, PDs and STRDs and corporate governance variables; IOWN, MOWN and REM as independent variables. Market value is considered as a dependent variable and calculated using Tobin's Q and ROA as a measurement of firm value. This development enables a

comprehensive examination of firm value and tax minimisation whilst considering the impact of corporate governance on this relationship.

6.2 Sample Selection and Data

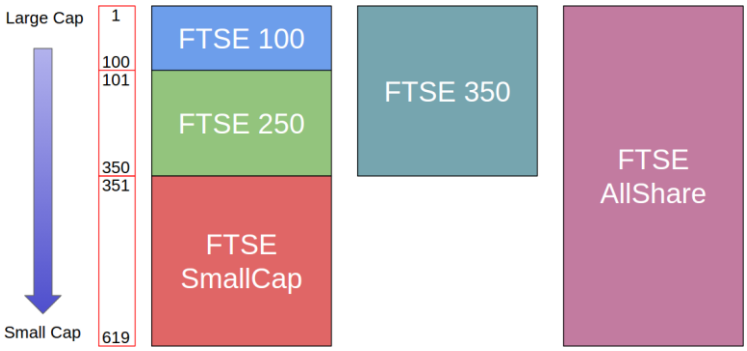
The sample of this research concentrates upon the largest UK multinational companies listed on the London Stock Exchange (LSE) namly; FTSE 350 in total and FTSE100 and FTSE 250 seperately for the period 2014 to 2016. This reflects the most recent and available data. More importantly, this data is pertinent in that it relates to a period after the introduction of the first general anti-avoidance rule for the UK in 2013. This rule aims to prevent tax reduction through the use of aggressive but nevertheless, legal provisions (HMRC GAAR Guidance, 2013; Publication of the Finance Bill, 2013) to evaluate the effect of these rules on companies' corporate tax and whether this rule reduced the book tax differences or not. These new rules have affected the contents of annual reports from 2014 onwards. In addition, the reason behind limiting the sample for only three years period is that the research used a unique dataset, which is hand collected from its original source (companies' annual reports). This data collection and calculation was time-consuming, which leads to focus only on this limited period.

The sample within the study is limited to non-financial companies, since financial companies have particular regulations and rules which could impact the research undertaken (Hanlon, 2005; McKnight and Weir 2009; Abdul Wahab and Holland, 2015; Korczak and Liu, 2014, Tauringana, and Mangena, 2014). Prior researchers used FTSE 350 and FTSE 250 in their studies and have also omitted financial companies from their samples (McKnight and Weir 2009, Korczak and Liu, 2014; Tahir, et al., 2018).

In addition, the accounting differences amongst industries could have an impact on the findings because of incidental IFRS impacts across industries (Goodwin, ET AL., 2008). The companies within the sample are listed in the main market as they meet the strict inclusion requirements of the LSE. Thus, they may tend to have a higher effective tax rate (ETR). Companies listed on the main market are required to comply with (or explain non-compliances) the framework of regulation and corporate governance (LSE, 2016). More specifically, all

companies listed under FTSE 350, which comprises the 100 largest UK-domiciled leading companies and FTSE 250. The FTSE UK is one of the four globally known index series, FTSE 100, FTSE 250, FTSE Small Cap and FTSE Fledgling. The FTSE 100 index is the most recognised index, accounting for 7.8 per cent of the market value of stock in the world, and representing around 85.5 per cent of the UK's market (LSE, 2010). It is commonly - used as a benchmark for a plethora of financial products accessible in LSE and worldwide. The FTSE 250 comprises medium size companies in term of capitalisation and total assets, which represents roughly 15% of UK market capitalisation (LSE, 2019). In addition, the FTSE small-cap is smaller than FTSE 100 and FTSE 250 in terms of capitalisation and the count for 268 companies, which is considered together with FTSE 100 and FTSE 250 as a constituent of the FTSE All-share index with 619 companies, and figure 6.1 below describes the FTSE UK indices.

Figure 0-1: The Structure of the FTSE UK Indices

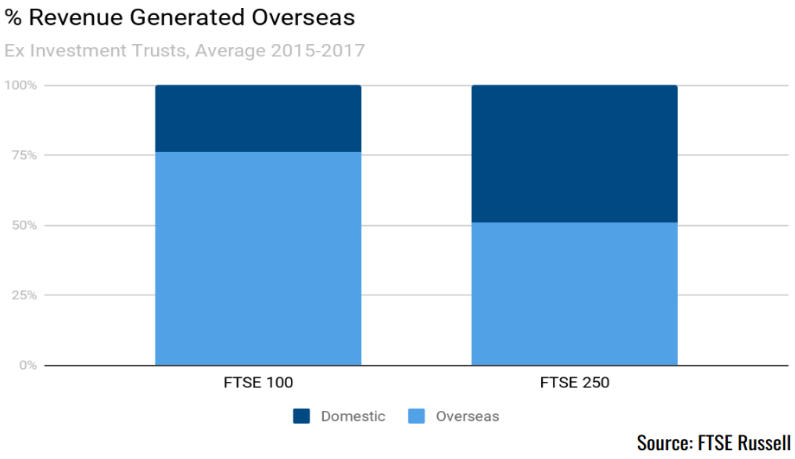


Source: pension craft website.

Therefore, the FTSE small-cap is excluded from the study sample for two reasons. First, it includes the small companies, while this research focuses only on large and medium-sized companies that have an overseas operation. This can facilitate an engagement in tax minimisation. Figure 6‑2 below shows the average of the overseas and domestic revenue for both the FTSE 100 and FTSE 250 between 2015 and 2017. Second, including this index makes the study sample count for 619 companies, which is considered to be very large and difficult to manage in terms of the variables calculations and due to the time constraint. This study focuses only on the FTSE 350 that comprises both the FTSE 100 and FTSE 250, which is due to the fact that those companies are the largest and that they are more

able to engage in an aggressive tax minimisation strategy and pay for tax advisors in order to reduce tax liabilities. In addition, the separation between the FTSE 100 and FTSE 250 is due to the fact that FTSE 100 companies are the largest international companies in the market and are considered more profitable and have a higher level of liquidity. This high liquidity enables them to have the funds that can be utilised in order to adopt more aggressive tax minimisation strategies through price shifting when compared with the FTSE 250. Also, FTSE 100 is the most liquid index, which enables it to be less volatile when compared with the FTSE 250 and other smaller indices. The separation between those two indices can help in providing more information that explains the tax minimisation behaviour and its impact on firm value in both indices.

Figure 0-2: FTSE 350 overseas and domestic revenue



Companies that have a negative profit before tax have also been omitted to prevent the effect of carrying losses forward on BTDs and deferred tax expenses due to the difficulty in interpreting effective tax rates (Dyreng, et al., 2014). Guenther, (1994) divides the sample under examination into two data subsets, the first for net operating income and the second for net operating losses carried forward to distinguish between the two findings.

Substantial data is collected directly from companies' annual reports. Stock price information (capitalisation) is collected from the LSE and governance data from two sources; remuneration data from DataStream and ownership data have been

bought from private financial information source (Minerva co.). Table 6.1 below shows the data sources used in conducting this research.

For the companies that do not have all of their archival data on their websites, the data have been obtained from the Companies House Website. The Companies House Website comprises all the UK companies' archival data, in its original version. The author has compared the data from the whole databases and has focused on the original companies' annual reports for taxation information, firm performance and control variables for calculation purposes. This means that DataStream has some missing data for all of the research variables and to tackle this issue the author uses the companies' annual reports to collect these data.

Table 0-1: Data Source

Type of Data	Source	Information gathered
Industry	LSE and FTSE Russell	Industrial classification Benchmark (ICB), which categorising companies for 10 categories
Financial Data	DataStream, Fame, Amadeus and annual reports	The whole data used to dependent and calculate control variables
Market Data	LSE	Capitalisation data
Tax Data	Companies' annual reports with using tax footnotes, which are included in annual report.	The data downloaded from companies' websites and hand calculated for dependent variables, independent variables and control variables.
Corporate Governance data	DataStream, Annual reports and Minerva co[13].	Remuneration data from DataStream and Ownership data from Minerva co.

Source: Author

There was the opportunity to utilise the confidential tax return information obtained from HMRC, and the author had been in contact with the research department. However, it was intimated that the process could take a long time,

[13] Minerva Analytics provides corporate governance information for a wide verity of groups interest such as researcher, data Analysts, Research Report Writers, else. Its website is: https://www.manifest.co.uk/

which was not within the period of the research scope. Nevertheless, despite the fact that such information would have enhanced the study, this project is by no means diminished as a result. Such information, the author considers would have been a bonus, but there are sufficient other sources of data to undertake detailed analysis. The data for 2013 also has been collected for benchmarking purposes concerning previous year's information. In addition, the period is chosen in order to use the best current obtainable data.

According to Saunders et al. (2012b) there are two classes of data, namely primary and secondary, and these data can be collected utilising different methods. Primary data is gathered pure and unmediated, and thus generally considered to be more authentic and reliable. In contrast, secondary data has already been processed through statistical and interpretive manipulation. Methods of gathering primary and secondary data differ in that primary data must be gathered from an original source, whilst with secondary data, the nature of data gathering work is solely that of selection.

This study uses secondary data, since it is readily accessible to scholars conducting research into similar issues to accomplish particular and unique objectives (Bell, et al., 2018). In search of secondary data, this study looks at different sources in order of precedence such as annual reports, journal articles, books, the internet, magazines and newspapers related to the subject of the research. These sources are reviewed at length to extract the information needed to support or question the findings.

Table 0-2: Data Cleansing

	Details	Number of companies	Number of Observations
1	FTSE 350 index (Russell 2014)	351	1053
2	Total Financial companies	(128)	
3	Number of companies have at least one-year negative profit	(42)	
4	Number of companies have at least one-year missing data	(9)	
5	Number of companies have at least one-year period more than 12 months	(3)	
6	Total omitted	(182)	(543)
	Companies under investigation	169	507

Source: The Author

According to the sample data industrial classification, Benchmark has been obtained from FTSE Russell (2019). This classification is well known globally as it allows investors and other interests entities to evaluate the international economy in a standardised manner (FTSE Russell, 2019). The sample's industrial classification detailed in Table 6.3 classifies the dataset into nine groups after excluding financial data.

Table 0-3: FTSE Russell Industrial classification Benchmark

Industry	Number of companies	Observations	Percentage of obs. %	Cumulative %
Oil & Gas	4	12	2.37	2.37
Basic Materials	11	33	6.50	8.87
Industrials	51	153	30.18	39.05
Consumer Goods	33	99	19.53	58.58
Health Care	11	33	6.51	65.09
Consumer Services	42	126	24.85	89.94
Telecommunications	3	9	1.78	91.72
Utilities	7	21	4.14	95.86
Technology	7	21	4.14	100
Total	169	510	100	100

Source: FTSE ICB 2019, designed by the Author

6.3 Analysis of Data

The main challenges in the analysis of the data are that tax minimisation variables that manually collected from the companies' annual reports for each year of the study period, which could take a much longer time comparing with collecting it from any online databases. In addition, access to corporate data has been the biggest challenge in conducting this research, because of the absence of these data from university's database and the difficulty of gathering it free of charge. Nevertheless, a decision was taken by the author to select one creditable and reliable source of corporate governance data namely Minerva Analytics. The process of collecting corporate governance data was time consuming in searching for the appropriate source in the market in terms of reliability and cost, then in negotiating the data and the price with the provider before choosing the acceptable quote. Minerva Analytics, provides academic research and institutions with unique insights into corporate governance, executive remuneration and voting

results data. Many academic institutions subscribe to Minerva data and many of the world's top journals reference it in their papers.

The research utilises main data sets namely, the book tax differences (BTDs), temporary differences (TDs), permanent differences (PDs), and overseas statutory tax rate differences (STRDs), to measure tax minimisation as proxies for independent variables and Tobin's Q & ROA to measure companies' market and non-market value as the dependent variable.

6.3.1 Development of Estimation Models

The models of the research are based on the market valuation and the method of measuring book tax differences developed by Abdul Wahab and Holland (2015). All these models are based on both agency theory and Scholes-Wolfson perspectives. The research develops the model by combining tax variables, corporate governance variables and control variables. The following subsections explain in detail the variables measurements and the estimation models. The study contributes to the existing literature concerning tax information by extending the Abdul Wahab and Holland (2015) model by integrating BTDs, TDs, PDs and STRDs variables to the examination models to estimate the contribution of those variables to firm value measured by Tobin's Q and ROA. This study modifies the models expecting to improve the relationship between book tax differences and firm value.

6.3.1.1 Book Tax Differences Measurement

Prior studies (Hanlon, 2005, Jackson, 2015) have used book-tax differences (BTDs) as a measurement of undetectable tax minimisation. This measurement is estimated by the difference between accounting profit and estimated taxable profit. Sloan (1996) investigates whether share price reflects the persistent differences between cash flow components of current earnings and accruals. He finds that the stability between cash flow and future accounting earning is greater than between accounting accruals and future accounting earnings. In addition, share prices do not reflect complete information that is included in the accruals and cash flow elements of current earnings. Thus, this information reflects on future earnings.

In his paper, Jackson (2015), states that considerable book tax differences represent persistent future earnings. Jackson (2015) finds firms that have engaged in tax minimisation have a positive relationship between the components of book tax differences and both earnings before tax and tax expenses. However, the study does not find significant evidence of the earnings management impact on the relationship between book tax differences and future earnings. It is unlikely therefore, that for companies with large negative book differences to recognise future earnings and consequentially, they will be unaffected. In contrast, in companies with positive tax book differences, their future earnings will be affected, thereby indicating the inability in fulfilling subjectivity in their financial reporting calculation.

Book tax differences occur due to the difference between accounting income and taxable income, which generates temporary differences and permanent differences (Hanlon, 2005). This difference in reporting the income arises as a consequence of the difference in the concepts and rules in the respective reporting system (Plesko, 2004).

Temporary differences generated as a result of the timing difference between accounting income and taxable income, refers to items of revenue or expenses being included in one period of tax but in a different period of books. Good examples of temporary differences are depreciation and allowance for doubtful accounts (Blaylock et al. 2012). The second component of book tax differences is permanent differences, which arise from transactions that are included in accounting income but are excluded from taxable income. These would include such as the interest on tax-exempt municipal bonds (Wilson, 2009).

The third component of BTDs can be recognised according to IAS 12 (The accounting treatment for income taxes) Income Tax disclosure requirement. It represents the imposed tax rate in other jurisdictions that differs from the rate in the home country. This variation in income tax rate generates a higher or lower current tax expense compare with the situation where the profit is taxable only in one country (Abdul Wahab & Holland 2014).

Companies' tax returns and details of tax minimisation activities are confidential information; therefore, proxies are used to measure tax minimisation, which might measure taxable income with error. This study measures tax minimisation by estimating book tax differences (BTDs), which identifies the difference between accounting income and estimated taxable income. Companies annual accrued tax income have been used to estimate book tax differences (BTDs), by gathering income before tax disclosed to estimated taxable income following Abdul Wahab and Holland (2015). According to prior research (Rego 2003; Dyreng et al. 2008; Dyreng et al 2010; Hanlon and Heitzman 2010; Robinson et al. 2010), there are two considerable proxies to measure tax minimisation that have been widely used in tax research. First, cash effective tax rate (CETR) which is the actual cash taxes paid divided by pre-tax book income minus special items. Second, effective tax rate (ETR) which is the total tax expense divided by pre-tax book income minus special items. ETR is widely uses in measuring companies' tax cost and reflects tax minimisation that influences net income; however, it does not reflect much more of permanent differences. A lower value of ETR represents an increase of tax minimisation activities from temporary differences component. This increase in temporary differences and deferment between actual tax due and cash tax paid for only a short period, thus ETR is unchanged in a long-term perspective (Hanlon and Heitzman, 2010). On the other hand, CETR represents the thought that executives' intention in engaging in effective tax minimisation is to reduce cash tax paid. CETR value is fundamental in representing the strategies that lead to permanent differences but does not affect upon tax expense on financial report (McGuire et al. 2012). The calculation of companies' BTDs is shown below following Abdel Wahab and Holland, (2015).

Book tax differences = income before tax – estimated taxable income

$$BTDs = IBT - TI \quad (1)$$

Where IBT is income before tax and TI is calculated taxable income. As known the information of companies' tax returns is confidential, therefore, to calculate TI, a gross up was made for current tax expenses (CTE) as following;

$$CTE = (TI_{UK} * STR_{UK}) + (TI_{OS} * STR_{OS}) \quad (2)$$

Where:

STR_{uk} is Statutory Tax Rate in the UK.

STRos = Statutory Tax Rate Overseas.

TI_{UK} = Taxable Income in the UK.

TI_{OS} = Taxable Income Overseas.

Separate taxable income (TI) to UK and overseas taxable income, results:

$$TI_{UK} = TI - TI_{OS} \quad (3)$$

Replacing (3) in (2) results:

$$CTE = TI * STR_{UK} + (STR_{OS} - STR_{UK}) * TI_{OS} \quad (4)$$

Replacing (4) in (3) results:

$$TI = \frac{CTE}{STRuk} - \frac{(STRos - STRuk) * TIos}{STRuk} \quad (5)$$

The numerator in the second part of the equation represents overseas income that is taxed at overseas statutory tax rates, which is different from the UK statutory tax rate. STRDs present the difference between statutory tax rate STR in the UK and statutory tax rate in other jurisdictions where the subsidiaries are operated. STRDs could be payable or refundable depend on the rate charged. In another word, if the value is positive, it means that overseas statutory tax rate is higher than the UK statutory tax rate, in this case the difference will be refundable and vice versa.

$$STRDs = (STR_{OS} - STR_{UK}) * TI_{OS} \quad (6)$$

In practice, (Abdel Wahab and Holland, 2015) the equation above is unobservable, as there is no reconciliation disclosed for the current tax expense (CTE), therefore timing differences are excluded.

Replacing equation (5) in (1) presents:

$$BTDs = IBT - \frac{CTE}{STRuk} + \frac{(STRos - STRuk) * TIos}{STRuk} \quad (7)$$

Tax expenses reconciliation represents only tax expenses (TE) and tax rate charge, so there is no disclosing for timing difference. Thus, the inclusions in the statutory tax rate differences disclosed are:

$$STRDs_{Disclosed} = (STRos - STR_{UK}) * (IPT_{OS} + PD_{OS}) \quad (8)$$

Foreign income before tax (IPTos) presents income before tax from subsidiaries that occurred in foreign jurisdictions. This account is unable to found in practice as it excluded in tax expense reconciliation in the financial statements. In this equation, temporary differences (TDs) have been omitted. Therefore, if a company has positive temporary differences overseas with a statutory tax rate that varies from the UK statutory tax rate, the calculated of taxable income (TI) will be underestimated by the total value of TDs, and vice versa. The evaluated (BTDs) is presented as:

$$BTDs_{Estimated} = IBT - \frac{CTE}{STRuk} + \frac{(STRos - STRuk) * (IBTos + PDos)}{STRuk} \quad (9)$$

Following the equation above, BTDs divides to temporary differences (TDs), and permanent differences (PDs). Temporary differences interpret the difference in considering expenses and the fiscal period when calculating the income. In contrast, permanent differences reflect the difference in tax estimation that arises from transactions considered as income and accounting expenses that are not considered to be trading and economic factors (Satyawati and Palupi, 2017).

Temporary differences component has been computed by deferred tax expenses (DTE) divided by the UK statutory tax rate as follows:

$$TDs = \frac{DTE}{STRuk} \quad (10)$$

If the TDs is positive, this shows temporary differences that explain the minimising of current year taxable income comparing to accounting income. A negative TDs shows otherwise.

The permanent differences component has been measured as shown in the equation below:

$$PDs = IBT - TI - TDs \quad (11)$$

A positive PDs shows the settlements that reduce taxable income compared with accounting income, thus leading to an increase in future net earnings. In the meantime, permanent differences catch the settlements that could not be inverted,

which emerge from the differences between taxable income and accounting income measurements.

6.3.1.2 Firm Value Measurement

In line with prior empirical studies (Chung and Zhang, 2011; Hot and Pombo, 2016) firm value has been estimated using two measurements, namely Tobin's Q and Return on Assets (ROA). The former measurement indicates market value and the latter indicates non-market value. ROA is independent from the company's capital structure compared with other financial performance measurements such as return on equity (ROE) (Hot and Pombo, 2016).

6.3.1.2.1 Tobin's Q

Tobin's Q (Tobin, 1969) provides accurate information about the outcomes of companies' activities, especially details that are related to investment decisions (Nugroho and Agustia, 2018). In addition, Tobin's Q has been used in prior research as an indicator of firm performance and growth opportunity since Demsetz and Lehn (1985) used it in measuring firm value. Moreover, it has become common in research concerning the relationship between firm value, tax minimisation and corporate governance (Loderer and Peyer, 2002; Desai and Dharmapala, 2009; Wang, 2011; Ammann, et al., 2013). In this study, Tobin's Q measurement follows Desai and Darampala, (2009) as shown in the equation below, by adding company's capitalisation after 3 months following the publication of the annual report as disclosed by LSE to the difference between total liabilities and deferred tax expenses divided by total assets, again following Desai and Darampala (2009)[14]. Thus, the market capitalisation obtained for the three years data sample reflects the delay in publication of the annual reports.

$$Q = \frac{\mathbf{MVEit+3} + (\mathbf{TL} - \mathbf{DTE})}{\mathbf{TA}}$$

Where:

TA = Company's Total Assets

TL = Total Liabilities

DTE = Deferred Tax Expenses

[14] There are various methods of measuring Tobin's Q adopted in the literature. The one that has been chosen here was the most appropriate in term of data availability and tax purpose.

MVE_{+3} = Market Capitalisation after three months of the publication of the annual reports.

Usually the Tobin's Q measurement includes deferred tax expenses; however, it is excluded from the equation above. This exclusion occurs due to the potential mechanical correlation that happens between dependent variable and tax minimisation variables as a consequence of including deferred tax expenses. This correlation arises from changes in future tax liabilities that could be a result of tax minimisation activities (Desai and Dharmapala, 2009).

6.3.1.2.2 Return on Assets (ROA)

ROA is considered one of the most effective measurement of companies' performance (Hagel et al, 2013) as it shows how companies use their assets efficiently and effectively to create non-market value. A focus upon ROA and an understanding its constituents on the part of the board can improve companies' ability to use its resources effectively and to create returns over the long term. ROA has been widely utilised in empirical research as a reflection of company's profitability and accounting base performance (Hot and Pombo, 2016; Kim, 2016; Dray and James, 2019). Additionally, Noor and Fadzillah (2010) find for example, that Malaysian companies with high ROA tend to have low ETRs, which is an explanation for the fact that companies with higher profitability tolerate lower corporate tax income burdens. Those companies adopt tax incentives and provisions to minimise taxable profit that lead to a lower ETR compared with the statutory tax rate of 28% in Malaysia.

ROA is also utilised in research concerning the relationship between tax minimisation as measured by effective tax rate and firm value. For example, Delgado, Fernández-Rodríguez, and Martínez-Arias, (2018) in studying this relationship utilising a sample of German companies data find a significant negative relationship between the ROA and ETR suggesting that German companies engage aggressively in tax minimisation. Likewise, Noor, Mastuki and Bardai, (2008) find a negative relationship between ETR and ROA in studying Malaysian listed companies during the new tax regulation regime imposed on both the assessment system and self-assessment system. This result indicates that

companies take advantage of tax incentives that government provided through both new regulation and investing the income tax exempt. Additionally, the variability in ETR amongst companies suggests that only specific companies are benefiting from tax incentives, which indicates aberrations in the corporate tax framework. In distingushing between small and large companies in investigation of the relationship between tax minimisation and profitability in Romanian unlisted companies Afrasinei, Georgescu and Istrate (2016), find that large companies have subsidiaries in tax havens which affect their profitability and ETR. Those companies have a lower return on assets compared with small local companies, thus, suggesting that large multinational companies have the ability to engage in complicated tax strategies that reduce profit before tax via their subsidiaries as a result of reducing their current tax expenses.

Return on assets as measured in this study, follows prior research (Noor, Mastuki and Bardai, 2008; Hot and Pombo, 2016; Kim, 2016; Delgado, Fernández-Rodríguez, and Martínez-Arias, 2018; Dray and James, 2019). The definition of ROA is shown below.

ROA = (Net Profit before Interest and Tax / Total Assets) * 100

ROA= NIT/ TA* 100

6.3.1.3 Corporate Governance Measurement

The hypotheses outlined in the previous chapter predict that the relationship between tax minimisation and firm value is moderated by corporate governance practices. Jensen and Meckling (1976) explain that increasing managerial ownership and aligning managers' interests with those of shareholders can reduce agency costs. In addition, managerial ownership can be used as a monitoring mechanism of managers' behaviour and designed to be of benefit to shareholders. Appel, Gormley, and Keim, (2016) state that the greater passivity of shareholders represents betterment in long-term performance in US companies and reduce the possibility of acquisition by hedge funds. This view, however, runs contrary to a general move towards active shareholding and greater participation by shareholders in the affairs of the company. A further tool that can align both managers' and shareholders' incentives is the remuneration structure. Some of the research conducted on the remuneration structure and its impact on firm value

(Jensen and Meckling, 1976; Mehran, 1995) suggest links between ownership structure and remuneration as factors related to firm performance. Recently, the remuneration structure appears as a matter of concern to corporate governance's scholars in the UK (Ferri and Maber, 2013, Gregory-Smith, 2012), particularly after the financial crisis in 2008 and the rise of corporate scandals, which have led to public protests on excessive executive payments. In theory, executive remuneration is considered as a tool that helps in decreasing the agency costs through reducing the principal-agent conflicts, due to the fact that remuneration can incentivise managers to maximise firm value and align their interest with shareholders (Marnet, 2005). However, executive remuneration becomes part of the agency problem and results in managerial opportunisms (Bebchuk and Fried, 2003; Marnet, 2005). Besides, executives are rewarded for luck and this luck occurs mostly on the most discretionary components of compensation, bonus and salary, which are higher in companies with poor governance (Bertrand and Mullainathan, 2001).

Based on a tax minimisation perspective, as proposed by Desai and Darampala (2006), incentive compensations tend to be a fundamental definition of tax minimisation, where greater incentives are linked to a lower degree of tax minimisation. This relationship is moderated by institutional ownership in companies with weak governance and as such does not apply to well-governed companies. This result sheds light on the importance of understanding the interactions between tax minimisation and managerial incentives, especially when the evidence suggests that book tax differences lead to negative abnormal returns and shareholders do not benefit from those differences.

This study uses two measurements of corporate governance, which are institutional ownership and top executive remuneration, as mentioned in the sub-section below. This is to examine the moderating role that those two mechanisms could play in the relationship between tax minimisation components and firm value. Adopting those mechanisms in this research is due to how they potentially reflect the agentic behaviour, which underpins the agency theory. For example, institutional ownership in the UK is dispersed in nature, thus shareholders might not use their right to vote and be ineffective in their monitoring role (Khurshed et al., 2011), which leads to a passive existence of their role. In addition, executive remuneration can be linked to self-serving managers and leads managers to get

higher compensations and control the board; hence, remuneration can be utilised as a proxy for self-serving managers and as a model of a weak board.

6.3.1.3.1 Ownership Structure

The ownership structure is binary and includes institutional ownership, which is the percentage of total shares held as long-term strategic holdings by institutional shareholders such as banks and financial companies, willing to wait for long term earnings. The second element is managerial ownership and is the percentage of the total shares held by companies' managers. This percentage of shareholding is defined as being 3% of total shares issued, and companies are required by law to disclose the information about shareholdings above 3% in their annual reports. In the study sample, the number of observations of managerial ownership is only 69, and as such, this measurement has been omitted from the regression models.

Ownership structure:
Institutional ownership: 3% and above of total shares held by outsiders (IOWN).

The data related to these variables has been obtained from Minerva Analytic Co. but annual reports provide the bulk of the data, as the data from Minerva was incomplete and the opportunity to confirm the accuracy of this data was limited.

6.3.1.3.2 Remuneration Structure

This research differs from previous studies on remuneration on two matters. Firstly, it focuses on the total remuneration rather than the structure of remuneration. Secondly, it examines the top executive total remuneration's effect upon the relationship between tax minimisation and firm value, in the context of companies' ownership structure. Remuneration structure refers to total executives' salaries, bonus and share options scaled by the beginning book value of equity. Florackis (2008) measures compensation structure, (referred to in this thesis as remuneration structure) in two parts, which are total executive salary scaled by beginning of book value equity and a dummy variable of options or bonuses. Whilst in contrast, Mehran (1995) measures compensation in three ways; firstly, a percentage of total compensation in grants of new stock options scaled by the Black-Scholes formula (a model used to calculate options prices). Secondly, a

percentage of total equity-based compensation, and finally, a percentage of total compensation which comprises salary, dividend, bonus, properties, saving plans, insurance, and values of new stock options. This thesis expands the work of Florackis (2008) by measuring total compensations by the total of the top executive remuneration scaled by the beginning of book equity value.

Executive remuneration data include salaries, values of long-term incentive plans (LTIPs), bonuses, share options share awards that are given within a given year. This data in a total amount was obtained from DataStream and validated 100% by the author.

6.3.1.4 Control Variables Measurement

This research employs control variables that are factors used in prior research. These variables attach to two main components that concern both the underlying theory of tax minimisation and corporate governance critical components of which are agency costs and information asymmetry. These variables also control for specific characteristics of the company. The control variables that are used in this study are those of earnings management, capital intensity, leverage, foreign operations, and dividends. The table 6.4 below shows the control variables and their measurements.

Earnings Management (EM) considered by Hosseini, el. (2015) to be one of the most important issues for shareholders. In addition, the earnings management section in the annual report provides information for tax estimation to measure the financial performance of company. Failure to disclose will lead to information asymmetry that is an essential contributor to the agency problem. Earnings management in this research is related to a control mechanism to deter the CEO tampering with financial information. According to agency theory, executives might tend to mislead investors and to act to their own advantage thus, conflicts arise with shareholders wealth and the fiduciary duties of directors (Jensen and Meckling, 1976). In addition, many scholars consider earnings management as a control variable to discourage the diversity in tax minimisation and the variables that occurs from earnings management (Desai and Dharampala 2009, Abdulwahab and Holland 2012).

Leverage (L) previous research (Lisowsky 2010, Abdulwahab and Holland 2012, Taylor et al. 2015) shows leverage as a firm specific factor that affects cross-sectional variation in tax minimisation. Furthermore, leverage could represent the tendency of harnessing a higher level of debt in order to gain a higher interest tax shield (Derashid and Zhang 2003). Consequently, there is a positive relationship between tax minimisation and leverage according to Dyreg et al. (2008) and Atwood et al. (2012).

Dividend (DI) is considered as an indicator of a company's performance (Harford et al., 2008) and a significant instrument that affects shareholder valuation. Dividend applies to control misinterpretation cost that occurs as a result of information asymmetry between executives and shareholders (Lindop and Holland, 2013). In some countries, for example, UK[15], dividends received from foreign subsidiaries are tax exempt and those countries could acquire an enhanced tax benefit from shifting income to a lower tax territory than countries following a global tax system (Hicks et. al., 2009). Jackson, M. (2015) argues that the income from dividend (in countries adopting an exempt dividend system), will not be recognised for a tax purpose, which creates a positive permanent book tax differences. This tax credit is not included in the difference between taxable income and accounting income; however, it leads to reducing tax expenses that are used in calculating taxable income. Furthermore, the dividend scale could be a reflection of the confidence of managers in term of future earnings projections. This might reflect a positive relationship with future earnings or indicate investment opportunities.

Capital Intensity (CI) signals the extent to which the company uses machinery and equipment. Capital intensity relates to tax minimisation in terms of capital allowance and capital expenditure's incentives. Previous scholars (Rego, 2003; Derashid and Zhang, 2003; Gupta and Newberry, 1997; Shevlin and Porter, 1992, Porcano, 1986; Zimmerman, 1983; Stickney and McGee, 1982) state that capital intensity is associated with the company's level of tax minimisation where there is a negative relationship between the effective tax rate and capital intensity level. However, Mills el al., (1998) demonstrate a positive connection between capital

[15] Foreign Dividend is exempt from UK tax since 2009, by virtue of the provisions of CTA 2009, part 9A.

intensity and tax minimisation in term of the capital expenditure. Therefore, this variable has been used to control the effect of capital expenditure on tax minimisation, excluding plant and property from the equation, as its association to capital allowances is not included for tax reduction purpose.

Foreign Operation (FOS) indicates that the level of engagement in multinational business activities. In the literature (Sikka, 2010, Desai and Dharmapala, 2009), it can be seen that MNCs have a greater opportunity to be involved in tax minimisation opportunities compared with local business through price shifting polices. Including (FOS) as a control variable follows other tax researchers, for example, (Kubick and Lockhart, 2017; Abdul Wahab, and Holland, 2015; Hoi, and Zhang, 2013; Lisowsky, 2010; Wilson, 2009). Wilson (2009) indicates that there is a positive relationship between tax shelters and foreign income, which means that subsidiaries located in a tax haven, could lead to a reduction in overall tax payment. Desai and Dharmapala (2006) state that those subsidiaries are able to engage in transactions that reduce taxable income or divert tax liability.

Table 0-4: Control Variables Measurement

Variable	Equation
Earnings Management (EM)	Total Accruals (Income before tax – operating activities' Cash flow)/ Equity Book- value for the beginning period.
Leverage (LEV)	Long-term Borrowing / total assets
Dividend (DI)	Dividends Per one Share/Earnings per one Share*100
Capital Intensity (CI)	Total machinery and Equipment / Total assets
Foreign Operation (FOS)	Ratio of foreign sales / Total sales

6.4 Methodology

This study utilises panel data analysis estimation models to take advantage of its features, such as the combination of cross-sectional and time-series data. Panel data is commonly used to examine complex behavioural models as it has the ability to overcome cross-sectional data issue such as heterogeneity and identify

dynamics of change, which cross-sectional data failed to identify. In addition, panel data helps in providing more accurate predictions for individual results (Hsiao, 2014). Examining Panel data sets utilise three different models: Pooled OLS model, fixed effects and random effects. As this study, uses only fixed effects and random effects models the focus is on these two models only.

6.4.1 Panel Data

This study utilises panel data estimation models to measure the development of variables over time. It is also frequently known as longitudinal data. Panel data is used as a combination of cross section and time series and are also named longitudinal data. Those longitudinal data include "*observations on the same units in several different time periods*" (Kennedy, 2008, p.281). A panel data set will have several entities, with repeating measurements over a number of different time periods. These entities (n) which are a series of observations (T) measured over time (t). The panel may be described as long or a short panel, the former having many entities but short time periods whereas the latter has long time periods but limited entities. It may also be balanced or unbalanced in that the balanced panel data means all the cross-sectional entities have the same number of time series observations; otherwise, it is unbalanced. There are a number of advantages to panel data namely that it concentrates accurately on the individual firm, thus avoiding problems of aggregation bias where the clustering effect of groups masks the importance of individual performance. The combination of time series and cross section provides a richer vein of data reduces collinearity and provides more degrees of freedom. Panel data is also a better means of measuring the dynamics of change and provides a superior detection mechanism for effects that remain unobserved in either cross section or time series data – the omitted variables problem. It also enables the study of the complexity of technological or economic change and transition (Hsiao, 2014).

Panel data models outline the individual behaviour across both individuals and time.

There are three forms of models: the fixed effects model, the random effects model and the pooled model.

Basic Regression model is essentially pooled OLS run as a panel data model, Greene (2012):

$$Y_{it} = \beta_0 + \beta_1(X_{it}) + \beta_2(Z_i) + \varepsilon_{it}$$

Where:

$Y_{it} =$ The dependent variable.

$\beta_1 and\ \beta_2$ = Coefficients.

X $_{it}$ = Independent variable (changeable over time and individuals).

Z_i = An unobserved individual and time-specific effect.

ε_{it} = Captures the 'idiosyncratic errors' or 'idiosyncratic Disturbances'.

$i\&t = i$ is an index for the entity and t is an index for time.

According to Greene (2012), the individual effect Z_i comprises a fixed term and a series of specific group variables that could be observed such as location and gender or unobserved as in specific features of family that are fixed over time. Furthermore, if the unobserved individual effect (Z_i) consists only a fixed term then the ordinary least-squares model (OLS) produces both a consistent and effective estimation of the slope vector β and the common intercept α. Furthermore, this base model makes some strong, possibly unrealistic, assumptions that x is non-stochastic and is not correlated with u, the error term (u) is not autocorrelated and is homoscedastic and there is strict exogeneity of independent variables. Clearly if the assumptions are correct then the Gauss Markov Theorem is not violated. In this study this is unlikely and therefore it is likely to have an issue of both heteroskedasticity and autocorrelation. The OLS estimator may be consistent but the standard errors are not consistent and bias is likely in the estimator.

On the other hand, there is an ability to analyse panel data utilising fixed-effects or random-effects models to allow for the capturing of individual and time-specific effects (Greene, 2012). Whereas, the fixed effects model tests the differences of the individual in intercepts with the assumption of the same constant variance and slopes upon entity and group. In relation, the entity effect

(Z_i) refers to the time invariant heterogeneities across entities i = 1, …,n and is not required to be independent in the regressions and is considered to be part of the intercept allowing it to be correlated with X_{it}. We now estimate β_1, the effect on Y_i of the change in X_i holding constant Z_i from the equation above. We now allow $\alpha_i = \beta_0 + \beta_1 X_{it} + e_{it}$ which gives the equation:

$$Y_{it} = \beta_1 (X_{it}) + \alpha_i + \varepsilon_{it}$$

$\alpha_i =$ Anonymous intercept for an individual. With i=1,….n and t=1,…T

Provided the fixed effects regression assumptions stated in the equation above, the distribution sampling of the OLS estimator in the fixed effects regression model in large samples is normal. The standard errors can be computed and the estimates variance can be estimated, t -statistics and confidence intervals for coefficients (Hanck et al., 2019).

The principle of random effects model is that the variation across the entities assumes them to be uncorrelated and random with the independent variables involved in the model,

> *"…the crucial distinction between fixed and random effects is whether the unobserved individual effect embodies elements that are correlated with the regressors in the model, not whether these effects are stochastic or not*" (Greene, 2012, p.347).

If there is any evidence to think that the dependent variable is impacted by any differences across entities, then random effects is the best option to be used. The benefit of random effects is that time invariant variables can be included (i.e. gender). In addition, these variables can be embodied by the intercept in the fixed effects model.
The random effects model is:

$$Y_{it} = \beta (X_{it}) + \alpha + \mu_i + \varepsilon_{it}$$

μ_i = A set of a specific random factor.

The assumption in random effects is that the error term entity is not correlated with the independent variables, which permits for time-invariant explanatory variables to assume a place in the model. The random effects model requires specifying those characteristics of individual that might or might not influence the independent variables. There is a potential problem with this in that the absence of certain variables may lead to omitted variable bias in the model.

6.4.2 Fixed Effects and Random Effects

A decision between fixed or random effects can be made through conducting a Hausman test (1978) where the null hypothesis is that the random effects model is preferred over the fixed effects model (Greene, 2012). It mainly examines whether the unique errors (ui) are correlated with the regressors, and the assumption of null hypothesis is that they are not.

The test examines whether the individual effects in the model are uncorrelated with other regressors. The primary null hypothesis in the Hausman test is that there is no significant difference between the estimation generated by both random effects the fixed effects models. Thus, if the null hypothesis is rejected then fixed effects model is the appropriate model for the estimation and random effects model should be rejected. The Hausman test is applied to the regression models and the null hypothesis is rejected in some models and approved in others. Tables 7.6, 7.7 and 7.8 represent the result of applying Hausman test on the three estimation models in FTSE350, FTSE100 and FTSE250 respectively with dependent variable measured by Tobin's Q and alternatively ROA as the dependent variable.

6.5 Research Models

The first model of this research tests the different components of tax minimisation and their impact on firm value.

Model 1: The relationship between firm value and tax minimisation components.

$$Q \text{ or } ROA = \beta_0 + \beta_1 BTDs_{it} + \beta_2 TDs_{it} + \beta_3 PDs_{it} + \beta_4 STRDs_{it} + \beta_5 EM_{it} + \beta_6 CI_{it} + \beta_7 LEV_{it} + \beta_8 FOS_{it} + \beta_9 DI_{it} + \varepsilon_{it}$$

Where

Q = Tobin's Q (firm market value) or ROA (firm accounting value).

BTDs = Book tax differences

TDs = Temporary differences

PDs = Permanent differences

STRDs = Overseas statutory tax rate differences

EM = Earnings management

CI = Capital intensity

LEV = Leverage

FOS = Foreign operation

DI = Dividends

εit = Error during the period.

To define whether the valuation of tax book differences and its components differ upon corporate governance levels the following model is utilised:

Model 2: The relationship between firm value and tax minimisation with the moderating role of institutional ownership and executive remuneration.

$$Q \text{ or } ROA = \beta_0 + \beta_1 BTDs_{it} + \beta_2 TDs_{it} + \beta_3 PDs_{it} + \beta_4 STRDs_{it} + + \beta_5 IOWN_{it} + \beta_6 EREM_{it} + \beta_7 EM_{it} + \beta_8 CI_{it} + \beta_9 LEV_{it} + \beta_{10} FOS_{it} + \beta_{11} DI_{it} + \varepsilon_{it}$$

Where;

IOWN = Institutional ownership.

EREM = Executive remuneration.

Equation 3: The relationship between firm value and tax minimisation with moderating role of institutional ownership and remuneration, and interaction variables.

$$Q \text{ or } ROA = \beta_0 + \beta_1 BTDs_{it} + \beta_2 TDs_{it} + \beta_3 PDs_{it} + \beta_4 STRDs_{it} + + \beta_5 IOWN_{it} + \beta_6 EREM_{it} + \beta_7 BTDs_{it} * IOWN_{it\ t} + \beta_8 TDs_{it} * IOWN_{it} + \beta_9 PDs_{it} * IOWN_{it} + \beta_{10} STRDs_{it} * IOWN_{it} + \beta_{11} BTDs_{it} * EREM_{it} + \beta_{12} TDs_{it} * EREM_{it} + \beta_{13} PDs_{it} * EREM_{it} + \beta_{14} STRDs_{it} * EREM_{it} + \beta_{15} EM_{it} + \beta_{16} CI_{it} + \beta_{17} LEV_{it} + \beta_{18} FOS_{it} + \beta_{19} DI_{it} + \varepsilon_{it}$$

Where:

$BTDs_{it} * IOWN_{it\ t}$: The interaction between book tax differences and institutional ownership variables.

TDs_{it}* $IOWN_{it}$: The interaction between temporary differences and institutional ownership variables.

PDs_{it} * $IOWN_{it}$: The interaction between permanent differences and institutional ownership variables.

$STRDs_{it}$ * $IOWN_{it}$: The interaction between statutory tax rate differences and institutional ownership variables.

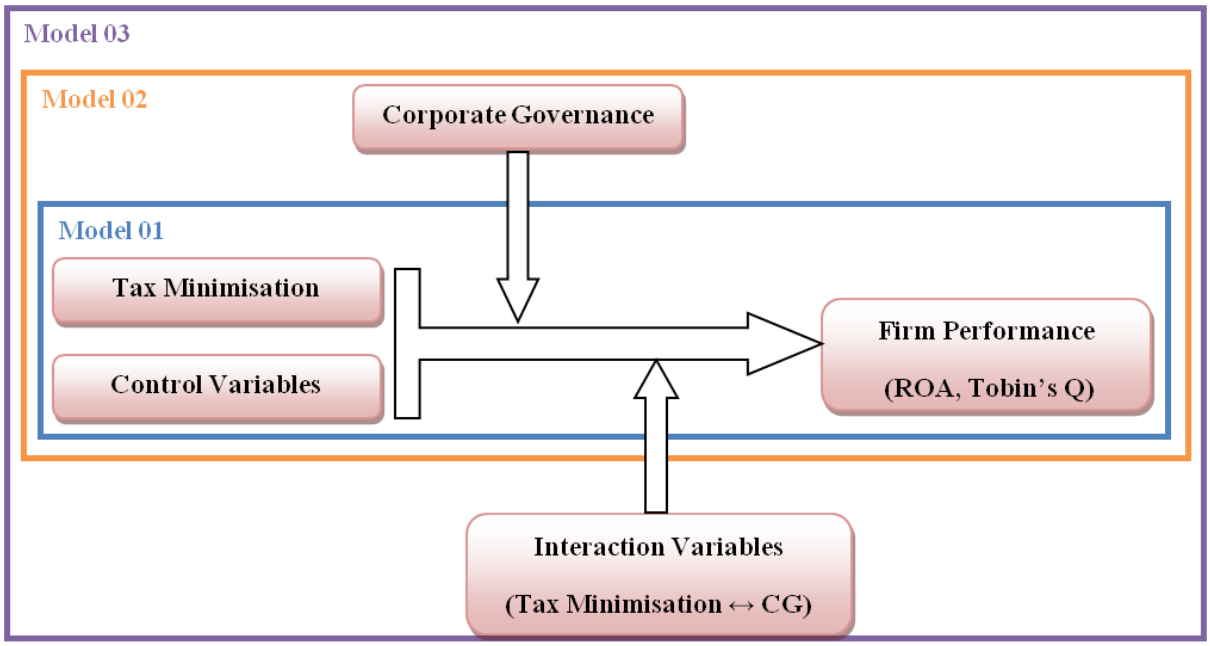
$BTDs_{it}$ * $EREM_{it}$: The interaction between book tax differences and executive remuneration variables.

TDs_{it}* $EREM_{it}$: The interaction between temporary differences and executive remuneration variables.

PDs_{it}* $EREM_{it}$: The interaction between permanent differences and executive remuneration variables.

$STRDs_{it}$ * $EREM_{it}$: The interaction between statutory tax rate differences and executive remuneration variables.

Figure 0-3: Explanation of the study models



6.6 Conclusion

This chapter connects the previous chapter that details the theoretical framework for the hypotheses under examination and the next chapter, and then expands upon the testing of those hypotheses. The estimation models are explained in this chapter in order to address the research questions. This research makes two explicit contributions to the existing body of knowledge. Firstly, the study develops a new methodology, based on prior research, on examination of the relationship between tax minimisation and firm performance. Secondly, it utilises a distinctive set of book tax differences data that is collected from the tax footnotes of companies' annual reports. This unique data calculation allows the scrutiny of the reporting standard of tax information in annual reports.

The chapter specifies the study sample and data collection sources with a brief explanation concerning the nature of the data. The chapter then explains the variables used in measurement and in formulation of the models. The methodology is the underlying framework of the research that enables both the investigation of the theoretical and practical elements of the study. Finally, this chapter provides an explanation of the methodology used in analysing the findings, which, is provided in the next chapter.

CHAPTER SEVEN: ANALYSIS AND FINDINGS

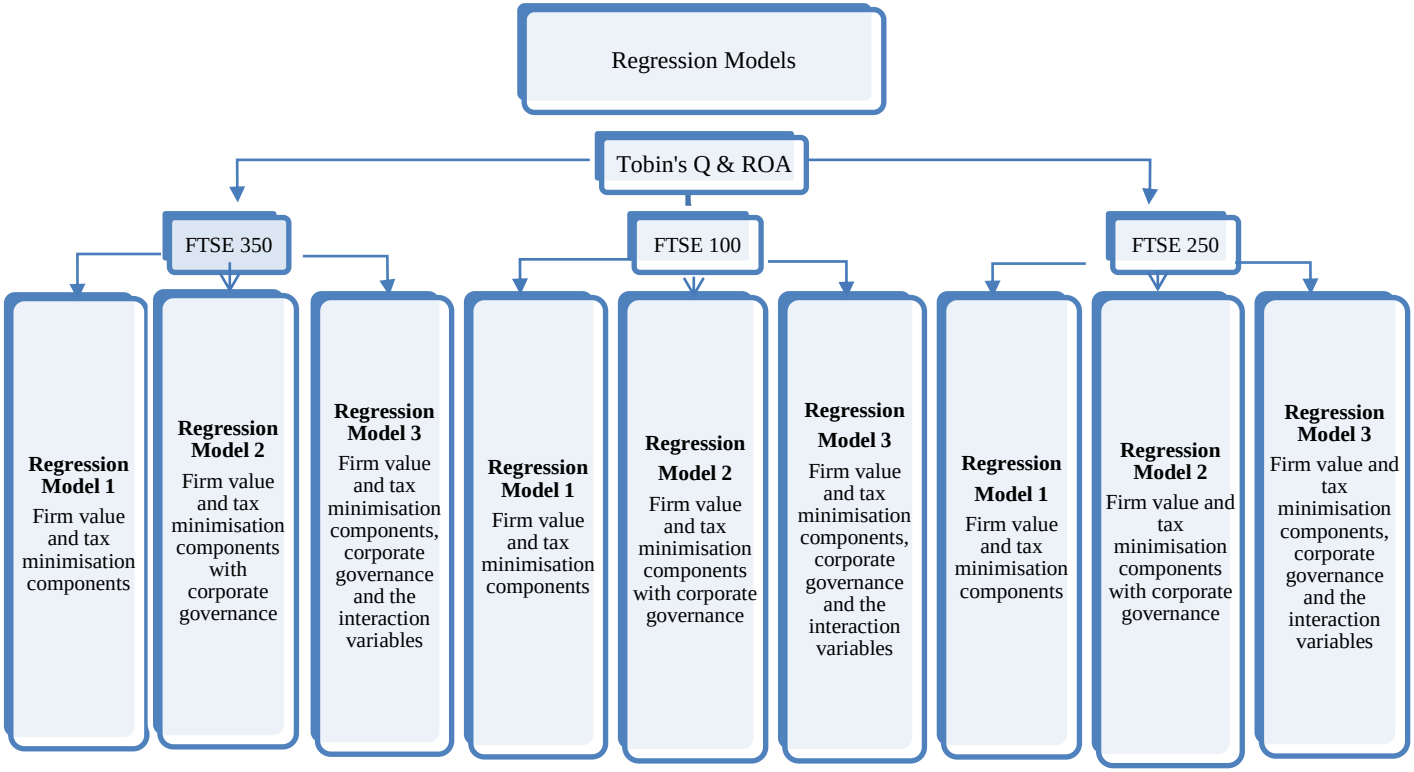
7.1 Introduction

This chapter aims to analyse data and present findings from the models mentioned in the previous chapter. This research aims to examine the relationship between tax minimisation components thorough book-tax differences and firm value and then identify the influence of the internal and external corporate governance mechanisms on this relationship by investigating whether theses mechanisms play a significant moderating role on this relationship. This empirical examination is carried out through utilising three different regression models as follows: the influence of book-tax differences components on firm value using two different measures of firm value meausres namely, Tobin's Q and return on assets (ROA) as dependent variables

To conduct this examination, the following regressions are carrying out; the first model examines the relationship between book-tax differences components and firm value utilising the two measures (Tobin's Q and ROA). This model is conducted on FTSE 350 sample, then on FTSE 100 and FTSE 250 separately to grasp the behaviour change in the relationship more deeply by first, discovering whether there is a change or not and second, interpreting the reasons underlying this change if found. Thus, this model is repeated six times; three times on the three samples using Tobin's Q and the same process is applied for the same three samples using ROA, figure 7.1 below explains this process.

Further investigation is performed to moderate the relationship between book-tax differences and firm value by adding the external and internal corporate governance mechanisms to the first model, which lead to creating the second model of the analysis regression models. Moreover, interaction variables of corporate governance and tax minimisation components are added to the second model to create the third model and apply the regression on the three samples. These three main models are mentioned below in this chapter in the results and discussion section.

Figure 0-1: Explanation the Models Classification



As a result of potential heteroscedasticity issues, the regressions are applied utilising Huber White robust standard errors on the three models and samples using both Tobin's Q and ROA as firm value. Whilst, the full sample includes both positive and negative book-tax differences the whole process are applied again on positive book-tax differences sample to obtain some insight in the changing behaviour of the relationship between firm value and tax minimisation. Additionally, the relationship between firm value and tax minimisation with the moderating role of corporate governance proxies followed by the relationship between firm value and tax minimisation with the corporate governance proxies and interaction variables.

The structure of this chapter is as follows: First, it starts with cleansing and organising the data by demonstrating the tests for the outliers and influential observations utilising OLS regression to show the results before and after omitting outliers and then continues with descriptive statistics of the samples and further descriptive for the positive book-tax differences samples.

Additionally, to run the tests for the regression models a decision is made based on Hausman test to decide between fixed effects and random effects models. Thus, some robustness tests are also run to ensure that the conclusion is robust and confirm whether fixed effects or random effects are the appropriate models for each sample under investigation. These are Breusch-pagan tests to decide between random effects and OLS and both F-test and time fixed effects to decide whether both OLS and time fixed effects or fixed effects are the suitable models for the regressions.

After choosing random and fixed effects models further specification tests are conducted namely, multicollinearity and heteroscedasticity tests, to make sure that the models under examination are free of multicollinearity and heteroscedasticity problems and to ensure the results are not biased.

Further examinations are conducted to ensure the robustness of the results and the potential existence of endogeneity that can be detected after running the multicollinearity and heteroscedasticity tests. Additional three tests are conducted to ensure that there is no fundamental issue within the sample could lead to biased

results. Firstly, the test to explore the possibility of endogeneity, which can occur if there is a variable explained by other variables, which is not considered in the model.

Secondly, year dummy tests are applied to examine the stability of the results reported over time by estimating the models over the period of the study, hereby reflecting the influence of time on the relationships for the three years under investigation, namely 2014, 2015 and 2016.

This annual overview can lead to greater understanding of shareholders' valuation of tax minimisation activities on an annual basis. The findings of these annual regressions for the three models using the two measures of firm value with a robust test of all regression models, which are reported in Appendix B-8, B-9 and B-10.

Interpretations of the multivariate findings are provided after testing the models and detecting any statistical issue that could lead to a biased result. The discussion on the findings is provided on the results after performing the robustness test namely, the cross-section clustered Eicker-Huber-White standard errors, as panel data in accounting research might include potential serious cross-sectional dependency. This issue could be raised as a result of the companies' data that could share similar characteristics across time when they have the same fiscal year-end (Bernard, 1987).

7.2 Data Cleansing and Organisation.

7.2.1 Outliers and Influential Variables

In this section, a residual test is performed for the data subset to discover whether the sample has uncommon influences on the estimation models, which includes outliers and influential observations. Outliers are observations that have significant differences in nature from other observations through including an extreme value whether in one or more variables (Hair et al., 2014). Hence, Outliers are the observations that differ significantly in their value from the mean and could, therefore, cause the estimator to be biased and inconsistent and the standard deviation to be exaggerated (Field, 2018).

To resolve this potential anomaly, the outliers are identified by utilising a studentised residual for the data study to reduce the outliers' effect (Hair et al., 2014). Some research determines outliers by virtue of studentised residual>|2|, claiming that this number shows a residual of large observations, which could be a signal of unusual value (Belsley et al. 1980; Chen et al. 2005). Whilst, other research identifies outliers based on studentised residual>|1.96| to reduce reverse causation (Black et al., 2017). In taxation research, outliers based on studentised residual |3| are used (Bauman and Shaw, 2008). This excludes more observations and could explain that the sample of taxation research has a unique form in terms of calculating tax variables, which tends to be smaller than other accounting research samples.

Following prior research in controlling outliers, the data of this research tests using studentised residual (by filtering observations with R of |3|) in order to reduce the bias of influential observations (Bauman and Shaw, 2008). The studentised residuals are calculated from the full sample and four observations (0.78 per cent of the whole of 507 observations for 169 companies) from the regression models are deleted. Thus, the final sample includes 168 individual companies, with 503 company-years observations[16]. Within this sample, 17 observations are without a Tobin's Q value;

[16] One company has only two years observations (2014 and 2016) as 2015 has been delated for outlier's reason.

automatically omitted by STATA. Thus, the total observations under regression after omitting outliers are 486.

The results are presented In Table 7.1 before and after excluding the outliers, column 1 shows the full sample without the exclusion of outliers and column 2 post omission. Column 1 and column 2 of Table 7.1 below shows the OLS regression result for 490 observations and 486 observations [17] (after excluding the outlier). The reason underlying the use of OLS is that it is considered highly sensitive to extreme observation whether in dependent or independent variables (Leone, Minutti-Meza, and Wasley, 2019). In addition, Leone, Minutti-Meza, and Wasley (2019) suggest that the robust regression (RR) and OLS provides similar coefficients and conclusions when there is no influential observation.

[17] The result is similar in case of separating the data sample to FTSE 100 and FTSE 250.

Table 0-1: Book Tax differences components, firm value by Q and CG components

	Test	Full sample (1)	After omitting outliers (2)
PDs	T	3.57	3.48
	P>|t|	0.000***	0.001***
TDs	T	-1.69	-0.78
	P>|t|	0.091*	0.439
STRDs	T	3.33	3.62
	P>|t|	0.001***	0.000***
IOWN	T	-2.83	-3.29
	P>|t|	0.005***	0.001***
EREM	T	-0.78	-0.79
	P>|t|	0.435	0.432
EM	T	2.39	3.29
	P>|t|	0.017**	0.001***
CI	T	-0.34	-0.84
	P>|t|	0.734	0.401
LEV	T	11.07	12.34
	P>|t|	0.000***	0.000***
FOS	T	0.23	-0.37
	P>|t|	0.818	0.710
DIV	T	-0.52	-0.60
	P>|t|	0.605	0.549
Cons	T	16.75	17.82
	P>|t|	0.000	0.000
R-squared		0.2729	0.3221
N		490	486
Breusch-Pagan	chi2 (1)	2.65	12.10
	prop> chi2	0.1036	0.0005***

***, **and * significance level at 1%, 5% and 10% respectively.
PDs: Permanent differences, TDs: Temporary differences, STRDs: Statutory tax rate differences, IOWN: Institutional ownership, EREM: Executive remuneration, EM: Earnings management, CI: Capital intensity, LEV: Leverage, FOS: Foreign sales, DIV: Dividends.

Comparing the two results before and after removing the outliers, the coefficients of book tax differences (BTDs) components; permanent tax differences (PDs) and statutory tax rate differences are significant before and after excluding the outliers. In contracts, temporary tax difference (TDs) is significant at 10% before outliers but not significant after, however, statutory tax rate overseas differences has improved in its degree of significance degree after excluding the outliers from 3.33 to 3.62 and both coefficients amount are significant at 99%.

For corporate governance proxies institutional ownership (IOWN) is significant before and after removing the outliers and executives remuneration coefficient is not significant in the two cases[18]. In addition, R square has improved from 0.2729 to 0.3221 after excluding the outliers, which provide a better fit of the data for the regression models. For this reason, the examination of the regression models is run after excluding the outliers. In addition, the Breusch-Pagan test shows a significant result after excluding the outliers, which also emphasises the decision.

Another issue to consider in this data research is controlling for influential observations that is defined by Belsley et al (1980) as DFFITs. This control of the influential data can be tested using the leverage of Difference in Fits (DFFITs), when $|DFFIT| > {}^{2}\sqrt{}(P/N)$, where P explains the number of independent variables and N indicates the number of observations. DFFITS is a diagnostic that explains how influential a point is in a statistical regression. It is identified as the Studentised DFFIT, where the latter is the change in the predicted value for a point, gained when that point is excluded from the regression; Studentisation is achieved by dividing the estimated standard deviation of the fit at that point. The threshold for detecting influential data is |0.495| and there are no observations in the sample data that exceeded the threshold. Thus, this confirms that there are no influential observations that could excessively affect the models estimated.

The use of Cook's distance for observations measures the extent of change in regression coefficients after excluding influential observations. Kleinbaum et al.

[18] The researcher conducts studentised residual>|2| but the regression result is not improved.

(2013) explain that utilising a cook's distance threshold of less than (1) in excluding observation does not have a significant effect on parameter estimates. Therefore, the sample has 489 observations if the dependent variable (firm value) measures by Q and 503 observations if it measures by ROA, which are the base for the further analysis and tests.

7.2.2 Descriptive Statistics

The tables 7.4, 7.5 and 7.6 below show the descriptive statistics of FTSE 350, FTSE 100 and FTSE 250 samples utilized to test the market valuation of book tax differences components. The size of the samples varies from the total sample mentioned in the previous chapter because of the exclusion of outliers that appeared in the estimation model tests of the book tax differences components. Total observations are 486 and 500 of FTSE 350 for both dependent variables; Tobin'sQ and ROA respectively. The sample of 486 observations that demonstrates Tobin's Q as a dependent variable can be divided into 184 observations for FTSE 100 companies and 302 observations for FTSE 250 companies. Whilst, the sample of 500 observations that reflects ROA as a dependent variable can also, be separated to 186 observations for FTSE 100, 314 observations for FTSE 250 as explains in the table 7-3 below.

Table 0-2: The distribution of the observations

Sample	FTSE 350	FTSE 100	FTSE 250
Tobin's Q	486	184	302
ROA	500	186	314

Table 7-3 represents the total observations for the study sample of FTSE 350 with an average of equity market value after three months of releasing the annual reports (MVE_{+3}) of £7,551.589 (in £ million). The whole sample has a negative sign for tax saving, book tax differences and permanent tax differences of £-6.431, £-113.4542 and £-119.158 respectively. However, it has a positive 5.704 temporary tax

differences and 9.3212 statutory tax rate differences. The positive sign of statutory tax rate differences indicates that the UK tax rate is lower than the jurisdictions' tax rate (Abdul Wahab and Holland, 2015). In addition, ETR is lower than STR, which explains the negative sign of tax saving for the whole sample as a result of the corporate tax rate reducing in the UK to 20% during the sample of a study comparing to the previous 10 years.

For the corporate governance variables, the average of IOWN is 34.792%, which is slightly higher than the value reported in the previous UK research concerning tax minimisation and corporate governance, which was at 33.54% (Abdul Wahab and Holland, 2012; Florackis, 2008) with considering the changes over years. However, managerial ownership MOWN is at 20%, which is higher than the value in the previous studies conduct in the UK, which indicates the increase in MOWN over time. The remuneration average is £ 6.860 million with EREM/BE_{t-1} 0.226%, which also higher than the previous studies such as Abdul Wahab and Holland (2012). This difference could lead to different outcomes in term of its significance.

In table 7-4, the data represents a sample of FTSE 100 the largest trade companies listed in LSE (in £ million) with an average of MVE_{t+3} £17,426.44[19]. Those companies have an average ETR of 23.0 per cent, contrary, a negative tax saving TS average of 17.41. The average ETR of FTSE 250 in table 7-5 is approximately equivalent to FTSE 100; it counts for 23.0 per cent and higher in tax saving with a positive amount of 0.01. This shows the appearance of a tax saving strategy amongst FTSE 250 companies comparing with FTSE 100 companies. In addition, this difference indicates the variance in the scope of book tax differences between both indices sample. The average tax saving in FTSE 250 companies is higher comparing to FTSE 100 companies by the amount of 17.40.

[19] There are some companies published their annual reports in different currency (Euro and Dollar), an exchange rate is applied for every company after three months of releasing the annual report with considering the end of the fiscal year for every companies. The rates are extracted from Xe currency charts for every year.

In addition, in both samples, ETR is higher than STR, where STR in the average counts for 21 per cent in both FTSE 100 and FTSE 250. This is inconsistent with pre-tax income being higher than taxable income over the period of study, which indicates the narrowness in the scope of book tax differences among the study sample.

From the mean of the book tax differences (BTDs) and its components for both FTSE 100 and FTSE 250 sample. In average, FTSE 100 companies have negative BTDs of £ 264.96 out of which negative PDs £271.78 and the rest is a positive TDs 6.82. This means most of the tax saving is generated by temporary tax differences and expected to reverse in the future. Similarly, for the FTSE 250 companies, the average BTDs is negative of £24.56 out of which negative PDs £29.61 and a positive value of TDs £5.05. This can be explained as there are only few companies practising tax minimisation strategy, which can be shown in the minimum and maximum figures of PDs TDs. In term of overseas tax rate differences, the mean of STRDs of both samples has a positive sign, which indicates that companies had to pay an overseas tax rate on their overseas income more than the domestic tax rate on their domestic income that shows the UK tax rate is lower than overseas tax rates.

Concerning corporate governance components, the average of managerial ownership is 16.16 per cent of total common equity for FTSE 100 and 20.80 per cent of total common equity for FTSE 250; however, this variable is dropped from the estimation models because it only counts for 68 observations. This indicates a lower level of managerial ownership for both indices sample in comparing to institutional ownership, which indicates an average of 27.57 and 39.03 of substantial institutions' shareholdings for both indices, respectively. This result shows the significance of the institutional ownership in the UK companies in comparison with managerial ownership and the role that institutional ownership can play to control tax strategic decisions. In terms of executive remuneration, on average, executive directors receive from £11.541 and £ 4.112 (in £ million) for FTSE 100 and FTSE 250 respectively. With linking remuneration with firm market value 17,426.44 and 1,703.378 (in £ million) in the two samples FTSE 100 and FTSE 250 respectively, there is a positive relationship between firm market value and remuneration, which indicates

that the increase of remuneration is more liked to firm value rather than the agency issues (Matolcsy and Wright, 2010; Gabaix and Landier, 2008).

To summarise, FTSE 100 companies have smaller institutional ownership percentage than FTSE 250. However, executive remuneration is higher for FTSE 100 compared to FTSE 250. This result is consistent with Ozkan (2007) who states that institutional ownership in the UK companies has a significant negative effect on executive remuneration. Similarly, Dong and Ozkan (2008) suggest that passive transient institutional investors in the UK lead to increase managerial discretion and in consequence increase executive payment.

Table 0-3: Descriptive Statistics of FTSE350 Companies

Variables	Mean	Min	Max	Standard Deviation
MVET+3 months (£m)	7,551.589	163.34	175,651.7	17,305.570
TI (£m)	440.395	-72.170	20,320.990	1,368.889
IBT (£m)	326.7476	0.17	10,526	821.9585
TS (£m)	-6.431	-1,366.49	715.72	108.333
BTDs (m)	-113.4542	-9,794.990	2,067.15	695.339
PDs (£m)	-119.158	-7,730.790	2,003.160	546.8775
TDs (£m)	5.704	-2705	1,652.170	256.819
STRDs (£m)	9.3212	-35	1035	58.146
ETR	0.235	-0.80	1.57	0.249
STR	0.209	0.1	0.23	0.013
Tobin's Q 486	0.522	0.01	1.14	0.221
ROA 500	13.522	-4.92	316.10	24.691
IOWN 503	34.792	0	87.21	19.281
EREM (£m)	6.860	0.150	84.158	9.036
REM/BEt-1	0.226	-0.7	12.01	0.969
EM	-0.001	-2.91	4.73	0.483
CI	0.236	0	1.45	0.252
LEV	0.212	0	2.7	0.246
FOS	50.757	0	100	38.195
DI	1.598	-0.31	79.35	4.076

MVET+3 months: Equity market value after three months of the annual report publication, TI: Taxable income, IBT: Income before tax, TS: Tax saving BTDs: Book tax differences, PDs: Permanent differences, TDs: Temporary differences, STRDs: Statutory tax rate differences, ETR: Effective tax rate, STR: Statutory tax rate, ROA: Return on assets, MOWN: Managerial ownership, IOWN: Institutional ownership, EREM: Executive remuneration, REM/BE_{t-1}: Executive remuneration to equity book value in the prior year, EM: Earnings management, CI: Capital intensity, LEV: Leverage, FOS: Foreign sales, DIV: Dividends.

Table 0-4: Descriptive Statistics: FTSE100 Companies

Variables	Mean	Min	Max	Standard Deviation
MVET+3months (£m)	17426.44	1076.54	175,651.7	25482.57
TI(£m)	963.50	0.27	20321	2144.94
IBT (£m)	698.54	0.17	10526	1265.21
TS (£m)	-17.41	-1366.49	715.72	176.02
BTDs (£m)	-264.96	-9794.99	2067.15	1116.11
PDs (£m)	-271. 78	-7730.79	2003.16	862.13
TDs (£m)	6.82	-2705	1652.17	417.17
STRos (£m)	21.21	-35	1035	94.16
ETR	0.23	-.8	1.57	0.26
STR	0.21	0.13	0.23	0.012
Tobin's Q 184	0.560	0.01	1.14	0.24
ROA 186	15.83	-4.92	316.10	38.62
IOWN 184	27.57	0	86.14	17.62
REM (£m)	11.541	0.479	84.158	12.829
REM/BVEt-1	0.333	-0.7	12.01	1.18
EM	.02	-1.46	4.73	0.53
CI	0.25	0	1	0.26
LEV	0.22	0	0.57	0.15
FOS	61.49	0	100	35.56
DI	0.98	-0.28	16.39	1.58

[1] MVET+3 months: Equity market value after three months of the annual report publication, TI: Taxable income, IBT: Income before tax, TS: Tax saving BTDs: Book tax differences, PDs: Permanent differences, TDs: Temporary differences, STRDs: Statutory tax rate differences, ETR: Effective tax rate, STR: Statutory tax rate, ROA: Return on assets, MOWN: Managerial ownership, IOWN: Institutional ownership, EREM: Executive remuneration, REM/BE_{t-1}: Executive remuneration to equity book value in the prior year, EM: Earnings management, CI: Capital intensity, LEV: Leverage, FOS: Foreign sales, DIV: Dividends.

Table 0-5: Descriptive Statistics: FTSE250 Companies

Variables	Mean	Min	Max	Standard Deviation
MVET+3months (£m)	1703.378	163.34	8769.88	1207.65
TI (£m)	133.46	-72.17	2186.66	166.63
IBT (£m)	108.60	2.23	497.87	83.86
TS	0.01	-130	65.15	19.83
BTDs (£m)	-24.56	-1779.38	275.04	131.78
PDs (£m)	-29.61	-1977.04	275.04	134.97
TDs (£m)	5.05	-285	254.81	53.79
STRDs (£m)	2.35	.22.24	61	6.96
ETR	0.23	-0.57	1.57	0.24
STR	0.21	0.10	0.23	0.01
Tobin's Q (302)	0.50	0.02	0.99	0.21
ROA 314	12.16	-2.72	79.38	9.23
IOWN 299	39.03	0	87.21	18.98
REM (£m)	4.112	0.150	32.238	3.587
REM/BEt-1	0.16	-0.7	12.01	0.82
EM	-0.01	-2.91	3.57	0.45
CI	0.22	0	1.45	0.25
LEV	0.21	0	2.7	0.29
FOS	44.46	0	100	38.41
DI	1.96	-0.31	79.35	4.96

MVET+3 months: Equity market value after three months of the annual report publication, TI: Taxable income, IBT: Income before tax, TS: Tax saving BTDs: Book tax differences, PDs: Permanent differences, TDs: Temporary differences, STRDs: Statutory tax rate differences, ETR: Effective tax rate, STR: Statutory tax rate, ROA: Return on assets, MOWN: Managerial ownership, IOWN: Institutional ownership, EREM: Executive remuneration, REM/BE_{t-1}: Executive remuneration to equity book value in the prior year, EM: Earnings management, CI: Capital intensity, LEV: Leverage, FOS: Foreign sales, DIV: Dividends.

7.2.3 Descriptive Statistics – Positive Book Tax Difference Sample

To understand tax minimisation behaviour through book tax difference and its effect on firm value suggests analysing this variable with its components namely PDs, TDs and STRDs in more details to distinguish between book tax difference and its components in the effect on firm value. This section furthers the descriptive statistic of BTDs and its components (TDs and PDs) as well as STRDs to enhance the understanding of the different components of book tax differences and their different impact on firm value.

To examine the effect of book tax differences on performance, the sample is reduced to concentrate only on the positive BTDs observations to identify companies that are involved in tax reduction and obtain a better understanding of their behaviour. Table B-1 shows the descriptive statistic of 179 observations of FTSE 350 that have positive BTDs during the period of study. These observations count for approximately 60 companies out of 168 companies, which average 35.59% of the total sample.

From the mean of BTDs and its components TDs and PDs, the average BTDs count for 89.9 per cent, contributed mostly for TDs with an average of 70.745% with PDs counting for only 18.67%. This means only 20.88 per cent of total BTDs are permanent differences, which will not reverse in the future, and 79.12 per cent express timing difference and this will be reversed in the future.

In contrast, to the previous sample, this sample has ETR lower than STR, where STR is 21% the ETR is only 9%. Overall, based on BTDs and its components of tax saving the positive amount of BTDs consequently generate positive TDs and PDs, which leads to the conclusion that for positive BTDs sample, BTDs, TDs and PDs increase tax saving to 32.36 per cent. Moreover, the difference between IBT 293.68 and TI 204.28 is equal to BTDs 89.40 per cent.

Corporate governance and control variables correspond to the previous tables. For further explanation of book tax differences with its components TDs and PDs. Splitting this positive BTDs sample into FTSE 100 and FTSE 250, the results are

shown in tables B-2 and B-3 respectively. Concerning BTDs in both samples, the BTDs in FTSE 100 £172.320 smaller than BTDs in FTSE 250 50.660; however, PDs in the latter sample £23.020 is more than in the former sample £9.350. It indicates that FTSE 250 companies involved in tax minimisation that will not reverse in the future more than FTSE 100.

The average of both Tobin's Q and ROA are approximately similar in both samples. With linking these results with corporate governance variables, it can be noted that the average of institutional ownership (IOWN) in FTSE 100 is 25.05 per cent smaller than the institutional ownership in FTSE 250 is 38.96 per cent. This indicates that external control in FTSE 250 is higher than in FTSE 100, however, it does not prevent companies from engaging in tax minimisation as the results above shown. This result concurs with the claim that institutional ownership in the UK is passive and ineffective in their monitoring role and in using their voting rights (Khurshed et al., 2011). In addition, a high level of institutional ownership could lead the minority institutional shareholders to take the opportunity to endorse their own interest without considering other shareholders (Hart, 1995).

In contrast, FTSE 100 remuneration payment to executive directors (in £ million) is on average £ 9.917(£ million), which is nearly triple, the mount that FTSE 250 paid 3.779 (£ million). This is not surprised as the magnitude of the work responsibility and the time consumption for FTSE 100 can be more than for FTSE 250.

7.2.4 Model Specifications

This research utilises panel data to examine the relationship between tax minimisation components and firm value with considering corporate governance mechanisms as a moderating role in this relationship. There are some specific econometric tests are conducted to determine the suitable panel model for each regression including the Hausman test, the F-test and the Breusch-Pagan Lagrange Multiplier test (LM) testing for time-fixed effects (Gujarati, 2003; Breusch and Pagan, 1979; Hausman, 1978)[20]. Tables 7-6, 7-7 and 7-8 show the summary of the specification tests for all the three models using both Tobin's Q and ROA separately as dependent variables, for the three samples FTSE 350, FTSE 100 and FTSE 250 respectively.

Table 0-6: Model Specification for FTSE 350

Specification Test	Model 1		Model 2		Model 3	
	Q	ROA	Q	ROA	Q	ROA
Hausman Test for Fixed Vs Random Effects Model [if ≤0.05 = Fixed Effect]	Prob>chi2 = 0.0000	Prob>chi2 = 0.1970	Prob>chi2 = 0.0000	Prob>chi2 = 0.2678	Prob>chi2 = 0.000	Prob>chi2 = 0.4418
Breusch-Pagan LM Test for Random Effects Vs OLS [if ≤0.05 = Random Effect is used]	-	Prob > chibar2 = 0.000	-	Prob > chibar2 = 0.000	-	Prob > chibar2 = 0.000
F-Test for Fixed Effects Vs OLS [if prob>F ≤0.05= Fixed Effect is used]	Prob>chi2 = 0.0000	-	Prob>chi2 = 0.000	-	Prob>chi2 = 0.0251	-
Testparm (Effects) [if ≤0.5 → Time Fixed Effect is used]	Prob > F = 0.6268	-	Prob > F = 0.6046	-	Prob > F = 0.5306	-
Decision	Fixed Effects	Random Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects

[20] To conduct the analysis of multiple regressions some specific tests are carried out on the panel data to choose the most appropriate regression models.
Q; Tobin's Q, ROA: Return on assets

7.2.4.1 Hausman Test.

Hausman test in econometrics is a statistical hypothesis test (Hausman, 1978). This test is used to make a decision whether to utilise fixed effects or random effects test to ensure that, if necessary, the effects of specific heterogeneities of firms and time are captured. The Hausman test equation is as follows (Baum, 2006):

$$H = (\hat{\beta}_c - \hat{\beta}_e)'D - (\hat{\beta}_c - \hat{\beta}_e)$$

$\hat{\beta}_c$ = An estimator consistent with both null and alternative hypothesis

$\hat{\beta}_e$ An estimator fully efficient with the null, but inconsistent if the null is false.

The Hausman test is applied on the three models utilising Tobin's Q and, separately ROA as a dependent for FTSE 350 sample. The results reject the null hypothesis for the three models with Tobin's Q, as their results are less than 0.05, thus, fixed effects model is the most suitable for them. However, for all models with ROA, the results are more than 0.05, thus; the random-effects model is the most suitable model in this instance.

As a consequence, for fixed-effects models, two tests are required namely the F-test, which confirms that fixed effects are more suitable than the pooled ordinary linear model (OLS), and Time fixed effects for determining if the time dummies for the years are equal to zero or not. In contrast, for random effects, the Breusch-Pagan test is required to confirm it is more suitable than the pooled ordinary linear model (OLS).

7.2.4.2 Breusch-Pagan Lagrange Multiplier Test (LM)

For random-effects models, the Lagrange Multiplier test (LM) is conducted to select between panel regression (random effects) and ordinary least squares regression (OLS). If the result is less than 0.05, it implies that there is a significant difference across units, the null hypothesis is rejected and random-effects model is needed to run the multiple regressions for the three estimated models (Breusch and Pagan, 1979).

7.2.4.3 F-Test

F-test is utilised to make the comparision between statistical models that were selected and a data set to determine the model that is considered the most sutible for the population of the data sample. F- test is a statistical test that has F distribution through the null hypothesis if the prob > F result is less than or equal 0.05, indicates that fixed effects model is not zero and the combined error terms are correlated ($u_i + \mathscr{E}_{it}$) then the null hypothesis is rejected and fixed effects model is chosen over OLS.
The supposed fixed effects model is as follows (Lomax and Hahs-Vaughn, 2007):

$$Y_{it} = \beta \mathcal{X}_{it} + \mu_i + \varepsilon_{it}$$

($\mu_i + \varepsilon_{it}$) = Observed and unobserved fixed effects are equal to zero.

The F- test is used to test the three models with Tobin's Q and the results show that fixed effects are required.

7.2.4.4 Time-Fixed Effects Test (Testparm)

To identify the most appropriate model between fixed effects and time fixed effects, a common test is carried out to examine if the time dummies for all the period under investigation is equal to zero, and if so, time fixed effects are not required. This is can be understood if prob>F is equal or less than 0.05, then the null hypothesis is rejected and time fixed effects are required. The Testparm applies to the three models with Tobin's Q for time fixed effects with adding year dummies, the results do not reject the null hypothesis, and thus, fixed effects model is required.
The same tests are conducted for the two-samples FTSE 100 and FTSE 250 and the results are shown in tables 7-7 and 7-8.

Table 0-7: Model Specification for FTSE 100

Specification Test	Model 1		Model 2		Model 3	
	Q	ROA	Q	ROA	Q	ROA
Hausman Test for Fixed Vs Random Effects Model [if ≤0.05 = Fixed Effect]	Prob>chi2 = 0.0000	Prob>chi2 = 0.0254	Prob>chi2 = 0.0000	Prob>chi2 = 0.0995	Prob>chi2 = 0.0000	Prob>chi2 = 0.1069
Breusch-Pagan LM Test for Random Effects Vs OLS [if ≤0.05 = Random Effect is used]	-	-	-	Prob > chibar2 = 0.0000	-	Prob > chibar2 = 0.0000
F-Test for Fixed Effects Vs OLS [if prob>F ≤0.05= Fixed Effect is used]	Prob>chi2 = 0.0000	Prob>chi2 = 0.0582	Prob>chi2 = 0.0000	-	Prob>chi2 = 0.0092	-
Testparm (Testing for Time-Fixed Effects) [if ≤0.5 → Time Fixed Effect is used]	Prob > F = 0.1728	Prob > F = 0.4803	Prob > F = 0.2171	-	Prob > F = 0.7609	-
Decision	Fixed Effects	Fixed Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects

Table 0-8: Model Specification for FTSE 250

Specification Test	Model 1		Model 2		Model 3	
	Q	ROA	Q	ROA	Q	ROA
Hausman Test for Fixed Vs Random Effects Model [if ≤0.05 = Fixed Effect]	Prob>chi2 = 0.0277	Prob>chi2 = 0.3172	Prob>chi2 = 0.0611	Prob>chi2 = 0.2442	Prob>chi2 = 0.2653	Prob>chi2 = 0.3183
Breusch-Pagan LM Test for Random Effects Vs OLS [if ≤0.05 = Random Effect is used]	-	Prob > chibar2 = 0.0000	Prob > chibar2 = 0.0000	Prob > chibar2 = 0.0000	Prob > chibar2 = 0.000	Prob > chibar2 = 0.000
F-Test for Fixed Effects Vs OLS [if prob>F ≤0.05= Fixed Effect is used]	Prob>chi2 = 0.0011	-	-	-	-	-
Testparm (Testing for Time-Fixed Effects) [if ≤0.05 → Time Fixed Effect is used]	Prob > F = 0.1730	-	-	-	-	-
Decision	Fixed Effects	Random Effects	Random Effects	Random Effects	Random Effects	Random Effects

7.3. Diagnostics and Robustness Checks

In order to satisfy the validity of the panel data models that will be utilised in this research hypothesis tests will be conducted to identify potential problems of multicollinearity, heteroscedasticity and serial correlation. Multicollinearity means there are two or more independent variables in correlation with each other (Hair et al., 2014). Thus, it is essential to identify and solve any multicollinearity issue before carrying out the multivariate analysis in order to determine robustly the relationship between the dependent and independent variables (Hair et al., 2014). For the study purpose, these tests are carried out before conducting the most appropriate panel data regression models as following.

7.3.1 Correlation Matrix

In the analyses of the correlation matrix, high coefficients of the independent variables 0.9 and more, indicates considerable collinearity (Hair et al., 2014). The Pearson's coefficients are evaluated and are shown in tables B-4, B-5 and B-6 in the appendix B for FTSE 350, FTSE100 and FTSE250 respectively.

From the tables below, the independent variables are not correlated as the coefficients are less than 0.9 for all samples instead of the coefficient of the correlation between PDs and BTDs more than 0.9 (0.9423, 0.9434, 0.9253) in FTSE 350, FTSE 100 and FTSE 250. For that reason, BTDs is omitted from the three models, which indicates potential extreme multicollinearity. However, this issue can be solved by further tests to control any possible appearance of multicollinearity in the robustness analyses.

7.3.2 Multicollinearity Test (VIF)

In addition, multicollinearity investigates using variance inflation factors (VIF) for testing the independent variables as explained in Multicollinearity test subsection. The results of testing the hypotheses are reported in three subsections: First Firm value and tax minimisation components and second, firm value, tax minimisation components and corporate governance, finally firm value, tax minimisation

components and the interaction variables of tax minimisation components and corporate governance for the three samples (FTSE 350, FTSE 100, FTSE 250).

To detect the existing of multicollinearity by investigating whether two or more variables are correlated at a higher degree or not, the variance inflation factor (VIF) is applied to the estimation models. The significant multicollinearity between independent variables can be identified when the VIF is more than 10 that high existing of multicollinearity might impact the estimation of the regression parameters (Hair et al., 2014). Following Wooldridge (2010) the equation for the VIF test is:

$$\text{VIF} = \frac{1}{1 - Ri^2}$$

Where:

Ri^2 = The unadjusted R2 if X_i is regressed against all the independent variables in the estimation models.

Thus, if the result of VIF is greater than 10, there is multicollinearity between variables (Kleinbaum et al. 2013; Hair et al., 2014). From the tables 7-9, 7-10 and 7-11 below the highest VIF score is 6.42, thus, multicollinearity is not problematic in the estimated models.

Table 0-9: Multicollinearity Test for FTSE 350

Model		Multicollinearity Test (VIF) $(if VIF < 10 => there\ is\ no\ Multicollinearity)$
Model 1	Q	Mean VIF = 1.91
	ROA	Mean VIF = 1.89
Model 2	Q	Mean VIF = 1.74
	ROA	Mean VIF = 1.73
Model 3	Q	Mean VIF = 4.97
	ROA	Mean VIF = 4.92

Table 0-10: Multicollinearity Test for FTSE100

Model		Multicollinearity Test (VIF) $(if VIF < 10 => there\ is\ no\ Multicollinearity)$
Model 1	Q	Mean VIF = 1.98
	ROA	Mean VIF = 1.97
Model 2	Q	Mean VIF = 1.83
	ROA	Mean VIF = 1.82
Model 3	Q	Mean VIF = 6.41
	ROA	Mean VIF = 6.42

Table 0-11: Multicollinearity Test for FTSE250

Model		Multicollinearity Test (VIF) $(if VIF < 10 => there\ is\ no\ Multicollinearity)$
Model 1	Q	Mean VIF = 1.24
	ROA	Mean VIF = 1.25
Model 2	Q	Mean VIF = 1.21
	ROA	Mean VIF = 1.21
Model 3	Q	Mean VIF = 3.85
	ROA	Mean VIF = 3.76

7.3.3 Heteroscedasticity Test

Heteroscedasticity test concerns the relationship between the cross-section error term and dependent variables. Heteroscedasticity can cause unequal scatter, in which the distribution of the value of the dependent variable is non-constant among the values of the independent variables (Hair et al., 2014).

Furthermore, the existence of heteroscedasticity explains that the variation of the dependent variable is not similarly defined by every independent variable, which leads to limiting the explanation of the regressors impacts. This can cause inaccurate estimation of the standard error; thus, the findings of hypotheses testing will be biased. Utilising modified Wald Test, in which the results of prob>chi2 should be >0.05 in order to accept the null hypothesis that there is no heteroscedasticity in the regression model (Hair et al., 2014).

The tables 7-12, 7-13 and 7-14 below show the results of the modified Wald Test, which indicates there is an existence of heteroscedasticity in the three models as the prob>chi2 are less than 0.005, utilising Tobin's Q and ROA as the dependent variable for the three samples (FTSE 350, FTSE 100, FTSE 250). Solving this issue is performed through applying cluster robust standard errors at the panel data level, which leads to clustering standard errors that can be heteroscedastic and autocorrelation (Hair et al., 2014).

Table 0-12: Heteroscedasticity Test for FTSE 350

Model		Modified Wald Test for Groupwise Heteroscedasticity ($if < 0.05 => there\ is\ Hetroscedasticity$)
Model 1	Q	Prob>chi2 = 0.0000
	ROA	Prob>chi2 = 0.0000
Model 2	Q	Prob>chi2 = 0.0000
	ROA	Prob>chi2 = 0.0000
Model 3	Q	Prob>chi2 = 0.0000
	ROA	Prob>chi2 = 0.0000

Table 0-13: Heteroscedasticity Test for FTSE 100

Model		Modified Wald Test for Groupwise Heteroscedasticity ($if < 0.05 => there\ is\ no\ Hetroscedasticity$)
Model 1	Q	Prob>chi2 = 0.0000
	ROA	Prob>chi2 = 0.0000
Model 2	Q	Prob>chi2 = 0.0000
	ROA	Prob>chi2 = 0.0000
Model 3	Q	Prob>chi2 = 0.0000
	ROA	Prob>chi2 = 0.0000

Table 0-14: Heteroscedasticity Test for FTSE 250

Model		Modified Wald Test for Groupwise Heteroscedasticity ($if < 0.05 => there\ is\ no\ Hetroscedasticity$)
Model 1	Q	Prob>chi2 = 0.0000
	ROA	Prob>chi2 = 0.0000
Model 2	Q	Prob>chi2 = 0.0000
	ROA	Prob>chi2 = 0.0000
Model 3	Q	Prob>chi2 = 0.0000
	ROA	Prob>chi2 = 0.0000

7.3.4 Autocorrelation Test

The appearance of autocorrelation in linear panel data estimation models can lead to bias in the standard errors, which in turn lead to inefficient results (Wooldridge, 2010). To detect the serial correlation in the estimation models the Wooldridge test is conducted on the three models and there is no autocorrelation issue existed upon FTSE 350 and FTSE 250 regression models as the results of prob>F are all less than or equal 0.05 (Wooldridge, 2010). However, the FTSE 100 sample has a serial correlation in model 1, 2 and model 3 when dependent variable measures with ROA, this problem is resolved with Heteroscedasticity using cluster robust standard errors.

Tables 7-15, 7-16 and 7-17 below show the results of the serial correlation test for the three samples.

Table 0-15: Autocorrelation Test for FTSE 350

Model		Wooldridge Test for Autocorrelation in Panel Data ($if < 0.05 => there\ is\ no\ Serial\ Correlation\ upon\ varaibes$)
Model 1	Q	Prob>F = 0.0008
	ROA	Prob>F = 0.0003
Model 2	Q	Prob>F = 0.0011
	ROA	Prob>F = 0.0002
Model 3	Q	Prob>F = 0.0017
	ROA	Prob>F = 0.0004

Table 0-16: Autocorrelation Test for FTSE 100

Model		Wooldridge Test for Autocorrelation in Panel Data (if $< 0.05 => there\ is\ no\ Seri$al Correlation upon varaibes)
Model 1	Q	Prob>F = 0.0000
	ROA	Prob>F = 0.0606
Model 2	Q	Prob>F = 0.0000
	ROA	Prob>F = 0.0517
Model 3	Q	Prob>F = 0.0001
	ROA	Prob>F = 0.0769

Table 0-17: Autocorrelation Test for FTSE 250

Model		Wooldridge Test for Autocorrelation in Panel Data ($if < 0.05 => here\ is\ no\ Serial\ Correlation\ upon\ varaibes$)
Model 1	Q	Prob>F = 0.0032
	ROA	Prob>F = 0.0000
Model 2	Q	Prob>F = 0.0029
	ROA	Prob>F = 0.0000
Model 3	Q	Prob>F = 0.0024
	ROA	Prob>F = 0.0000

7.3.5 Endogeneity Test.

Endogeneity occurs when an explanatory variable is correlated with the error term. Regards to Baum (2006) this issue may lead to infringement of the zero conditional mean hypothesis of the linear regression model. Identifying the endogeneity issue amongst tax minimisation variables can be through considering a lag tax minimisation variable to instrument for lagged dependent variables (Loretz and Moore, 2013). The lag variable is assumed to be an exogenous variable, which explains only tax minimisation without firm value. This is derived from the hypothesis that the scale of tax minimisation can be influential across time; however, this assumption is inapplicable on firm market value. This is as a result of the short periodic nature of the tax-saving and the trigger of some specific economic situation that may happen during the year (Minnick and Noga, 2010). This study utilises simultaneous equation approach to identify the potential endogeneity issue, which considered as the most appropriate explanation in the tax research context (Minnick and Noga, 2010; Annuar et al., 2014).

Testing this assumption on the research first equation model by re-estimating the model utilising a dynamic panel estimator, which monitors for simultaneity namely 2SLS, in which lag tax minimisation components are adopted as estimator variables of tax minimisation components. According to Durbin-Wu-Hausman test of the endogeneity, the table in the appendix B-7 shows that the findings reject the endogeneity of the tax minimisation variable (chi-squard value = 5.01 with p value = 0.1708). Thus, the conclusion is that the present tax minimisation scale is exogenous from its lag.

7.3.6 Year Dummy

It is advantageous to examine the constancy of the results reported over time by estimating the models over the period of study to reflect the effect of time on the relationship for the three years under investigation; 2014, 2015 and 2016. This annual examination can lead to more understanding of shareholders' valuation of tax minimisation activities annually. The findings of these annual regressions for the

three models using the two measurements of firm value are reported in the appendix B; tables B-8, B-9 and B-10.

7.4 Result and Discussion

Multivariate analyses are carried out after excluding the outliers (Chen et al., 2005) and influential observations (Belsley et al., 1980). This section represents the main findings extracted from the eighteen estimation regression models. The coefficient values and P-values are exhibited, explained and utilised to evaluate the variables in all models. The coefficient value illustrates the average change in the dependent variables with any change in one of the predictor variables, whilst leaving the other predictors consistent. In addition, the value of P-value is considered statistically highly significant at 1%, significant at 5% and relatively significant at 10%.

The regression models are mainly six, in which three main models utilise Tobin's Q as a dependent variables and classify as; firm value and tax minimisation components; firm value, tax minimisation components and corporate governance variables and firm value; tax minimisation components, corporate governance variables and interaction variables.

The other three main models are with firm value measures by ROA. These regressions conduct on three different samples namely FTSE 350, FTSE 100 and FTSE 250 as shown in the figure 7.2 below.

In addition, the models and results are stated based on the three mentioned models in three main sections and these sections break down to two subsections based on the two measures of firm value: Tobin's Q and ROA.

In addition, as the robustness tests detect that the three models suffer from heteroscedasticity, which might lead to an inadequate estimation of the standard error (Hair et al., 2014). This issue can cause biased hypotheses testing results; therefore, the models are tested using robust standard errors, which is based on White (1980).

Moreover, Panel data in accounting studies, can underlie possible serious cross-sectional dependency as the observations of the companies share similar features

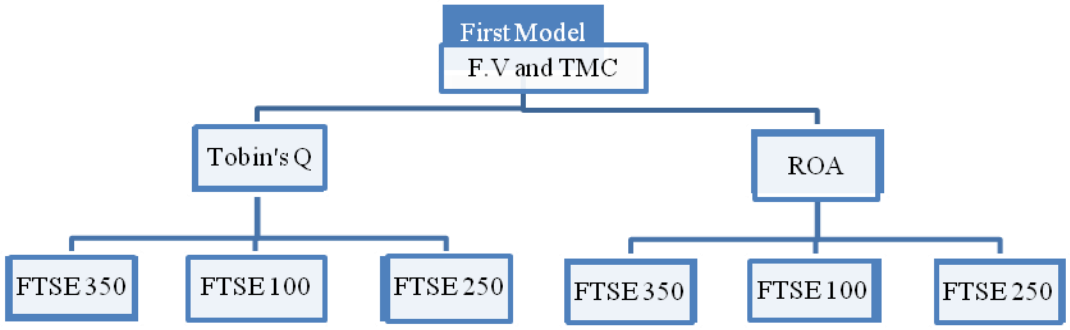
cross-time such as the same fiscal year-end (Bernard, 1987). Hence the estimation models are carried out utilising cross-section clustered Eicker-Huber-White standard errors consistent with previous research (Cameron and Trivedi, 2005; Baum, 2006). This can be done in STATA by utilising the command: xtreg y x, vce (cluster clustvar) which is equivalent to xtreg y x, vce (robust) (Wooldridge, 2010).
Cross-section Clustered Eicker-Huber-White method can control for autocorrelation or the dependency of residual error occurring with the firm-specific effects and is superior to other possible methods (Petersen, 2009).

For the samples FTSE 350, FTSE 100 and FTSE 250, Cross-section Clustered Eicker-Huber-White are applied in the three main models concerning the relationship between tax minimisation, firm value, tax minimisation, firm value and corporate governance and the models that included interaction variables. This is for the purpose of correcting both heteroscedasticity and non-normal distribution of the data and to establish whether this alters the results in any substantive way (Hair et al., 2014).

7.4.1 Model 1: Firm Value and Tax Minimisation Components

This section presents the results of the first estimation model that tests the relationship between tax minimisation components (TMC) and firm value (FV) measures by both Tobin's Q and ROA. This main model is applied on FTSE 350 and extended to report the results for FTSE 100 and FTSE 250 samples. The reason underpins this split of the sample is to explore the different outcomes and to explain the reason and cause of these differences. Table 7-18 below represents the main regression results for Firm value measured by both Tobin's Q and ROA, and Tax minimisation component; permanent differences PDs and temporary differences TDs and statutory tax rate differences STRDs. As shown in the table 7-18 below, different findings are exhibited in the samples. In addition, figure 7-2 below explains how these subsections are reported.

Figure 0-2: Explanation of the First Model Structure



[21]Source: Author

7.4.1.1 Firm Value Measures by Tobin's Q

This subsection outlines the results of the first estimation model with Tobin's Q as a dependent variable on FTSE 350 sample and then extends the results to FTSE 100 and FTSE 250 in order to explore the differences that underpin these samples and to explain the reason underlying them. In addition, the models (utilising Tobin's Q as a dependent variable for FTSE 350, FTSE 100 and FTSE 250 are fixed effects as confirmed by the Hausman test and the other robustness tests that are mentioned previously in this chapter.

7.4.1.1.1 Tobin's Q and Tax Minimisation Components on FTSE 350

This sub-subsection focuses on the first estimation model application on FTSE 350 and as shown on the previous result of Hausman test in table 7-6, the model for this sample is fixed effects as follows:

Model (1) FTSE 350 (Fixed Effects)

$$Q_{it} = \beta_0 + \beta_1 PDs_{it} + \beta_2 TDs_{it} + \beta_3 STRDs_{it} + + \beta_4 EM_{it} + \beta_5 CI_{it} + \beta_6 LEV_{it} + \beta_7 FOS_{it} + \beta_8 DI_{it} + \propto_i + \varepsilon_{it}$$

[21] F.v = Firm value
TMC= Tax minimisation components

Where,

Q_{it} : Dependent variables

PDs, TDs, STRDs : Independent Variables

β_0 : The Intercept term

$\beta_1 \ -\beta_3$: Coefficients for independent variables

$\propto_i$: Specific constant term for a group

ε_{it} : Error term for entity and time.

Table 0-18: Firm Value and Tax Minimisation Variables

	FTSE 350		FTSE 100		FTSE 250	
VARIABLES	1-1 Q	2-1 ROA	1-2 Q	2-2 ROA	1-3 Q	2-3 ROA
PDs	4.51e-06 (0.868)	0.0042 (0.002) ***	-0.0000 (0.528)	0.0045 (0.000) ***	0.0001 (0.061) *	0.0082 (0.004) ***
TDs	0.0000 (0.333)	0.0099 (0.000) ***	-1.51e-06 (0.924)	0.0079 (0.002) ***	0.0001 (0.432)	0.0245 (0.007) ***
STRDs	-0.0000 (0.772)	0.0514 (0.000) ***	-0.0002 (0.202)	0.0510 (0.000) ***	0.0006 (0.065) *	0.1482 (0.121
EM	0.0069 (0.163)	0.6822 (0.035) **	0.0114 (0.337)	0.8988 (0.310)	0.0041 (0.386)	0.2978 (0.424)
CI	0.3665 (0.088) *	12.7706 (0.080) *	1.0462 (0.000) ***	43.7668 (0.000) ***	0.1049 (0.046) **	0.5513 (0.866)
LEV	0.6436 (0.000) ***	2.0817 (0.784)	0.2879 (0.055) **	-19.909 (0.017) **	0.7696 (0.000) ***	2.7091 (0.635)
FOS	0.0004 (0.441)	-0.0366 (0.347)	0.0009 (0.289)	0.1184 (0.404)	-0.0002 (0.617)	-0.0251 (0.257)
DIV	0.0011 (0.009) ***	-0.10428 (0.127) *	-0.0025 (0.251)	-0.1686 (0.147)	0.0013 (0.000) ***	-0.1001 (0.030) **
Cons	0.2909 (0.000)	12.0197 (0.009)	0.1803 (0.001)	2.028 (0.821)	0.3527 (0.000)	12.5083 (0.000)
N	483	497	184	186	299	311
R-squared (within)	0.3480	0.1873	0.6497	0.5644	0.4050	0.0994
R-squared (between)	0.1037	0.000	0.0023	0.0074	0.2365	0.0025
R-squared (overall)	0.1138	0.0010	0.0005	0.0042	0.2488	0.0124
F (8,100) Prob > F	9.54 (0.000)		14.77 (0.000)	37.35 (0.000)	10.92 (0.000)	
Wald chi Prob > Chi2		110.83 (0.000)				25.380 (0.0013)

*Coefficient value and P-value in (brackets) ***, ** and * indicate significant at 1%, 5% and 10% respectively.
PDs: Permanent Differences, TDs: Temporary Differences, STRDs: Statutory Tax Rate Differences, EM: Earnings Management, CI: Capital Intensity, LEV: Leverage, FOS: Foreign Sales, DIV: Dividends.

Generally, from the table 7.18 above the model is significant (P<0.01) with F value of 9.54, which means that all the coefficients of this model are not equal to zero and the model is well fitted. The first column shows the results of Tobin's Q for FTSE 350, which demonstrates there is no significant relationship between tax minimisation components; PDs, TDs and STRDs and firm value measures by Tobin's Q. This result can be viewed as valid, as the tax rate in the UK has been reduced to 20% over the last decade, which is considered as a competitive corporate tax rate compared to other counterpart countries such as the US. This result is aligned with Desai and Dharmapala, (2006) who suggest that considering the effect of tax minimisation on firm value solely in a simple view of transferring resource from tax authority to shareholders can be incomplete without considering other factors such as corporate governance mechanisms.

However, there is a significantly positive relationship between CI with Q at 91% confidence, which exhibits the level of cash invested in fixed assets and is measured by dividing fixed assets on total assets. This positive finding is consistent with Shahean & Malik, (2012) who explain that companies with a high level of capital intensity is positively valued by investors, which is perceived as the increase in the company's quality and time production.

Leverage also, has a statistically significant positive relationship with the market value measured by Tobin's Q at 99.9% confidence, which means investors value the companies that rely on debts in their capital structure more than the equity-based companies. This may increase the risk related to borrowing such as the shortage in cash flow and meeting the requirement of liabilities and accrual of claims, however, it increases tax saving through increasing the interest expenditure (Modigliani and Miller, 1963). In addition, this finding is consistent with the theory that the increase in leverage can lead to a reduction in information asymmetry as a result of creditors' monitoring of the company (Andrikopoulos, et al, 2017).

Moreover, Gertler and Hubbard, (1993) suggest that leverage can be both negative and positive with firm valuation, in which it can positively affect managers' free use

of cash flow, however, it has a negative effect if it perceived as a potential increase in bankruptcy and financial risk.

In addition, the relationship between DIV and Q is statistically positive and significant at 99% confidence. This can be explained that institutional shareholders do not directly monitor the firms; instead, they tend to encourage managers to pay higher dividends to enhance capital market monitoring, which lead to increase the market price (Kilincarslan and Ozdemir, 2018; Zeckhauser and Pound, 1990).

7.4.1.1.2 Tobin's Q and Tax Minimisation Components on FTSE 100

This subsection presents the extent of the FTSE 100 results for the first estimation model that tests the relationship between tax minimisation components and firm value measures by Tobin's Q, the result of Hausman test in the table 7-7 above shown that the estimation model for this sample is an appropriate with fixed effects as it is shown below:

Model (1) FTSE 100 Fixed (Fixed effects)

$$Q_{it} = \beta_0 + \beta_1 PDs_{it} + \beta_2 TDs_{it} + \beta_3 STRDs_{it} + + \beta_4 EM_{it} + \beta_5 CI_{it} + \beta_6 LEV_{it} + \beta_7 FOS_{it} + \beta_8 DI_{it} + \propto_i + \varepsilon_{it}$$

Table 7.18 above represents the results for the main regression for firm value measures by both Tobin's Q and tax minimisation components; permanent differences PDs and temporary differences TDs and statutory tax rate differences STRDs. The table 7.18 above , shows the model is statistically significant with P-value <0.001 and Wild chi value 110.83, which explain that the coefficients are not equal to zero and the regression model fits the data better than considering the model without independent variables.

There is no relationship between tax minimisation components and firm value in the FTSE 100. As mentioned above, the findings suggest that simple view of corporate tax minimisation as a transfer of financial resource from the government to shareholders is not completed without taking the agency problems into consideration that describes the relationship between shareholders and managers (Desai and

Dharmapala (2006). In addition, and similar to the previous result for FTSE 350, there is a positive significant relationship between both capital intensity and leverage and Tobin's Q. However, there is no significant relationship between all of earnings management, foreign sales and dividend and firm value measures by Tobin's Q.

FTSE 100 has similar results as FTSE 350 in term of capital intensity and leverage, as both have significantly positive relationship at 1% and 10% levels respectively. There is no other explanatory result for this model with FTSE 100.

7.4.1.1.3 Tobin's Q and Tax Minimisation Components on FTSE 250

This subsection presents the extent of the FTSE 250 results for the first estimation model that tests the relationship between tax minimisation components and firm value measures by Tobin's Q as it is shown below:

Model (1) FTSE 250 (Fixed Effects)

$$Q_{it} = \beta_0 + \beta_1 PDs_{it} + \beta_2 TDs_{it} + \beta_3 STRDs_{it} + + \beta_4 EM_{it} + \beta_5 CI_{it} + \beta_6 LEV_{it} + \beta_7 FOS_{it} + \beta_8 DI_{it} + \propto_i + \varepsilon_{it}$$

The results in table 7.18 above show that there is a statistically positive relationship between the two tax minimisation components namely PDs and STRDs and Tobin's Q in the FTSE 250 at 93% confidence. This result concurs with the agency theory that suggests tax reduction leads to transfer the financial resource from the tax authority to shareholders, this is also, concurs with the results of prior research (Drake et al. (2019); Desai and Dharmapala (2009); Wilson, (2009), Rego, (2003)), who suggest shareholders positively value tax minimisation. In addition, the resource of this positive relationship arises from permanent differences (PDs), which is the difference between taxable income and accounting income that comprises the tax reduction that will not be reversed in future. This result is consistent with Inger (2014) who suggests shareholders positively value permanent tax differences. Moreover, The positive result of foreign statutory tax rate differences is inconsistent with Inger (2014) who find a negative relationship between deferral of residual tax on foreign income. Furthermore, there is no relationship between TDs and firm value, which is consistent with Inger (2014), who explains that investors do not value temporary tax differences;

due to the temporary nature of the benefits and their timing saving will reverse in the future.

In addition, the control variables CI, LEV are statistically significant in this model similar to the results of FTSE 350 and FTSE 100 at 10% and 1% levels respectively.

Likewise, LEV is significantly positive at 1% level, which is similar to the result in FTSE 350. This is consistent with Desai and Hines (2002) who indicate that in the high leveraged companies the share price is positively connected to diversion comparing with the low leveraged companies. The interpretation of this is that shareholders value tax-saving upon interest expenditure that occurs through liabilities. However, Cuong and Canh (2012) suggest that the level of leverage should not exceed 59.27 per cent; otherwise, it will have a negative effect on firm value. Likewise, Obradovich and Gill (2012) state that leverage has a positive impact on the US firm value, nevertheless, a high level of leverage could lead to bankruptcy.

To conclude, the three samples results show that there is no significant relationship between firm value measures by Tobin's Q and tax minimisation components namely: PDs, TDs and STRDs in both FTSE 350 and FTSE 100 when considering these components solely in regression models. This explains that while these proxies provide formative data to investors, however, they do not appear to impact on investors' valuation. This result is consistent with Abdul Wahab and Holland (2015) who study the persistence of BTDs and the behaviour of their components amongst the UK quoted companies and find that not all quoted companies have positive BTDs signs in all years under investigation, which could affect the results. The BTDs and their components' positive consistency signs are limited in some industry groups and those signs do not have a dominant trend. In addition, it concurs with Desai and Dharmapala (2009), who state that the relationship between tax minimisation and firm value is incomplete without considering corporate governance mechanisms in the relationship. Besides, the similarity in the results in both FTSE 350 and FTSE 100 is because FTSE 350 reflects FTSE 100 and consist of approximately 80% of the market capitalisation. This result provides evidence that investors value different tax minimisation components differently depend on the benefits and risks involved.

Whereas, there is a statistically positive relationship between firm value measured by Tobin's Q and PDs and STRDs in FTSE 250. This result is inconsistent with Abdul Wahab and Holland (2012), whilst, it concurs with Desai and Dharmapala (2006). This result is also consistent with the traditional view of agency theory that the role of tax saving leads to increasing of after tax return. It might explain that studying all the UK quoted companies could not lead to significant results as not all companies have positive BTDs in all the years as explained above. Thus, the result could lead to an insignificant relationship between tax minimisation components and firm value; however, breaking down the sample into different categories might lead to significant results as the findings in this study.

In addition, the positive significant relation between capital intensity and Tobin's Q in FTSE 350 is derived mainly from both FTSE 100 and FTSE 250. The result underpins hypothesis H1, which predicts the presence of the relationship between tax minimisation components and firm value.

Similarly, the positive significant relationship between leverage and Tobin's Q in FTSE 350 reflects both the positive significant sign in FTSE 100 and FTSE 250. This explains that both indices have a similar proclivity towards having a high level of leverage. However, the degree of significance in CI is higher in FTSE 100 compared to FTSE 250, which can be explained that FTSE 100 sample includes only two companies (6 observations) from the technology sector that deems to have a low level of capital intensity.
In addition, the control variable DIV is only positive and significant in FTSE 250, which, reflects in FTSE 350.

7.4.1.2 Firm Value Measured by ROA

This subsection includes three subsections to present the results of the three samples namely FTSE 350, FTSE 100 and FTSE 250 respectively with ROA as a dependent variable. The table 7.18 above shows the results with including cross-section clustered for standard errors. The result for ROA has a different dimension towards book tax differences components compared to the previous result that presents the

results with Tobin's Q, in which PDs, TDs and STRDs have a significant positive relationship with ROA in all samples. The result underpins the hypothesis H1a, which predicts the presence of the relationship between tax minimisation components and firm value.

7.4.1.2.1 ROA and Tax Minimisation Components on FTSE 350

The model for this sample is random affects as mentioned in the result table 7-6 of the Hausman test above and the model sets as follows:

Model (1) FTSE 350 (Random Effects)

$$ROA_{it} = \beta_0 + \beta_1 PDs_{it} + \beta_2 TDs_{it} + \beta_3 STRDs_{it} + + \beta_4 EM_{it} + \beta_5 CI_{it} + \beta_6 LEV_{it} + \beta_7 FOS_{it} + \beta_8 DI_{it} + \propto + \mu_I + \varepsilon_{it}$$

Where,

ROA_{it}: Dependent variables

PDs, TDs, STRDs : Independent variables

β_0 : The Intercept term

$\beta_1 - \beta_3$: Coefficients for independent variables

$\propto_i$: Specific constant term for a group

μ_I : Specific random element

ε_{it} : Error term for entity and time.

The result with ROA as dependent variable is positively significant in FTSE 350, in which tax minimisation components; PDs, TDs and STRDs have a significant positive relationship with ROA. This means that non-market value of companies' increases with the increase in the adoption of various tax strategies.

This result consists with Delgado et al. (2018), Noor et al. (2010) and Noor, et al. (2008), who state that companies with a higher level of profitability measured by return on assets tend to engage in tax minimisation and pay lower corporate tax income. This positive relationship between tax minimisation components and return on assets can be explained as book tax differences are derived by the company's profitability purpose (Herron & Nahata, 2018).

For earnings management, it is significantly positive at 95% confidence, whilst, the results for capital intensity are similar in both models (Q & ROA) in which it is statistically significant and positive at 90%, which reflects mainly the results of FTSE 100 sample.

Leverage shows an insignificant result, which is different from the result in Tobin's Q model. In addition, foreign sales also, insignificant and dividends have the opposite result in both models with Q and with ROA. The foreign sales result means that foreign operations do not have any effect on profitability; however, dividend leads to a decrease in the company's profitability at approximately 90% of significance level, which reflects mainly the FTSE 250 result.

7.4.1.2.2 ROA and Tax Minimisation Components on FTSE 100

The model for this sample is fixed affects as mentioned in the table 7-7 of the Hausman test above and the model sets as follows:

Model (1) FTSE 100 (Fixed effects)

$$ROA_{it} = \beta_0 + \beta_1\ PDs_{it} + \beta_2\ TDs_{it} + \beta_3\ STRDs_{it} + \beta_4\ EM_{it} + \beta_5\ CI_{it} + \beta_6\ LEV_{it} + \beta_7\ FOS_{it} + \beta_8\ DI_{it} + \propto_i + \varepsilon_{it}$$

Where,

ROA_{it}: Dependent variables

PDs, TDs, STRDs : Independent Variables

β_0 : The Intercept term

$\beta_1 - \beta_3$: Coefficients for independent variables

$\propto_i$: Specific constant term for a group

ε_{it} : Error term for entity and time.

Similar to the FTSE 350 sample, there is a positive relationship between tax minimisation components namely PDs, TDs, and STRDs and firm profitability. This indicates that implementing various tax minimisation strategies lead to increase in companies' profitability through return on assets, and the motivation for the manager to engage in tax strategy is to increase profitability (Herron and Nahata, 2018) as explained above. Furthermore, there is a positive significant relationship between

capital intensity and firm value through return on assets, which indicates the increase in total operational fixed assets contribute positively to the return on assets. However, this is not the case for all industries, as some industries such as in the technology sector can increase their profitability without having a huge amount of assets. In addition, as mentioned above FTSE 100 sample included only (2) companies (6 observation) from technology sector, which leads to present this significant positive result. Moreover, some empirical studies suggest that it is not the company's size that determines the reduction of the effective tax rate (ETR), it is how higher leverage and capital intensity are the company adopted (Holland, 1998).

Tax minimisation components in FTSE 100 sample have similar results as FTSE 350; therefore, the interpretation is similar to the previous. Moreover, LEV is significant and negative at 5% level.

7.4.1.2.3 ROA and Tax Minimisation Components on FTSE 250

The model for this sample is random affects as mentioned in the table 7-8 of the Hausman test above and the model sets as follows:

Model (1) FTSE 250 (Random Effects)

$$ROA_{it} = \beta_0 + \beta_1 PDs_{it} + \beta_2 TDs_{it} + \beta_3 STRDs_{it} + + \beta_4 EM_{it} + \beta_5 CI_{it} + \beta_6 LEV_{it} + \beta_7 FOS_{it} + \beta_8 DI_{it} + \propto + \mu_I + \varepsilon_{it}$$

The table 7.18 above shows a significant positive relationship between both tax minimisation components PDs and TDs and ROA in FTSE 250, which is equivalent to the other samples FTSE 350 and FTSE 100. Both PDs and TDs are significant at 1%, whilst, the results for STRDs could be consider as significant as the degree of confident is nearly 90%. The only control variable that has significant result is Dividends, which is negative at 95% reflected in FTSE 350.

To conclude the findings for the first model in the three samples is that firms' tax minimisation strategy seems to increase firm performance through increasing return on assets. In contrast, overseas tax differences in FTSE 250 companies appear to not have any significant impact on firm value measured by return on assets. In addition,

managers might outweigh the benefit of engaging in tax saving through profitability and the measurement that is used for this purpose is ROA.

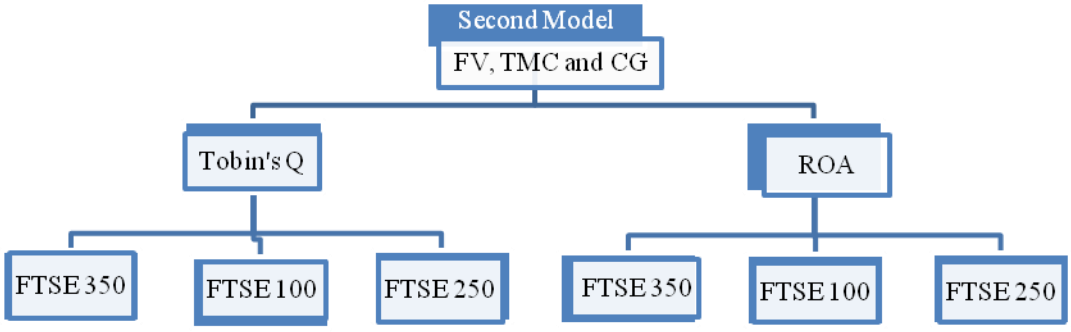
The result for capital intensity is significant in both FTSE 350 and FTSE 100 and it is insignificant for FTSE 250 as explained above in FTSE 100 subsection. Leverage, however, is only significant and negative in FTSE 100 and dividend is significant and negative in both FTSE 350 and FTSE 250.

7.4.2 Model 2: Firm Value, Tax Minimisation and Corporate Governance

Concerning the moderating role that corporate governance variables play on the relationship between tax minimisation and firm value, first, the below estimation models are further estimated to include corporate governance variables namely; Institutional ownership (IOWN) and executive remuneration (EREM). The results are shown in Table 7.19 below, in which column 2 and 3 represent FTSE 350 sample using the two measurements of firm value, column 4 and 5 represent FTSE 100 and column 6 and 7 represent FTSE 250. The figure 7.3 explains the distribution of the variables and different models for all samples.

This subsection shows the results including cross-section clustered for standard error, for the relationship between firm value measured by both Tobin's Q and ROA and tax minimisation components namely PDs, TDs and STRDs with considering two of corporate governance mechanisms one is an external namely IOWN and another is an internal namely EREM as a moderating role for this relationship.

Figure 0-3: Explanation of the Second Model Structure



7.4.2.1 Firm Value Measures by Tobin's Q

This subsection outlines the results of the second estimation model with considering Tobin's Q as a dependent variable on FTSE 350 sample and then extends the results to FTSE 100 and FTSE 250 to explore the differences underpinning these samples and explain the reason underlying these differences. In addition, the models utilise Tobin's Q as a dependent variable for FTSE 350 and FTSE 100 are fixed effects and FTSE 250 is random effects as confirmed by Hausman test and the other robustness tests that are mentioned in this chapter.

7.4.2.1.1 Tobin's Q, Tax Minimisation Components and Corporate Governance on FTSE 350

This subsection is focus on the second estimation model application on FTSE 350 and as shown on the previous result of Hausman test in the table 7-6 above, the model for this sample is fixed effects as follows:

$$Q_{it} = \beta_0 + \beta_1 PDs_{it} + \beta_2 TDs_{it} + \beta_3 STRDs_{it} + \beta_4 IOWN_{it} + \beta_5 EREM_{it} + \beta_6 EM_{it} + \beta_7 CI_{it} + \beta_8 LEV_{it} + \beta_9 FOS_{it} + \beta_{10} DI_{it} + \propto_i + \varepsilon_i$$

IOWN: Institutional ownership.
EREM: Executive remuneration.

The table 7-19 below shows there is no significant relationship between tax minimisation components and Tobin's Q in FTSE 350. This indicates that Tobin's Q does not have any explanatory power on tax minimisation components in its own (Desai and Drampala, 2009).

Furthermore, the external corporate governance mechanism (IOWN) is insignificant for this sample; however, executive remuneration (EREM) as an internal mechanism is significantly negative in FTSE 350 at 99% confidence, which reflects from both other samples; FTS 100 and FTSE 250. This indicates the negative perception of investors towards executive remuneration, which supports the agency view that higher executive remuneration might exist due to agency problem in the companies

with dominant managers (Jensen and Neckling, 1976; Dah et al., Bebchuk and Fried, 2003; 2012; Tarkovska, 2017; Emmanuel Iatridis, 2018).

Hence adopting a high remuneration strategy in order to align the two parties' interests and to prevent managers from involving in a higher opportunism propensity does not lead to the intended outcomes. As a result, shareholders do not believe that tax minimisation decisions are to their benefit and lead investors have a negative perception of this strategy. Therefore, the negative perception of shareholders is associated with the agency problems and negative entrenchment effects.

In contrast, this result is inconsistent with Weir and Laing (2000) who study the effects of Cadbury Compliance on the UK Quoted companies; find a positive relationship between remuneration committee and market returns for the year of 1995. However, studying one year might still not reflect the real effect.

Concerning capital intensity, the result is similar to the previous results for the first model, in which the relationship between capital intensity and firm market value is significantly positive at 90%. These result indicates that investors believe that capital intensity reduces risk and increases performance through cost savings gained from obtaining fixed assets (Barton, 1988). However, this advantage can only apply to manufacturing firms. In addition, capital intensity can support firms in financial efficiency as the commitment to the cost of the fixed asset contributes to firms' productivity during its life (Lubatkin and Chatterjee, 1994). An important point to add is that the reason underpins companies' motivation to become more capital intensive is that the changes in tax regulation might lead firms to consider increasing their capital intensity to reduce their effective tax rate (Stickney and McGee, 1982). This result concurs with some prior research that utilise Tobin's Q as a firm value measurement (Lubaktkin and Chatterjee, 1994; Lee and Xiao, 2011) and with Harris (1988) who measures firm performance by utilising the operation profit margin ratio.

With regards to leverage, interestingly, it has a positively significant relationship with Tobin's Q in FTSE 350 at 99% confidence level. This concurs with the theory that a higher level of leverage can lead to a lower level of information asymmetry because

of the high level of monitoring by creditors (Andrikopoulos, et al., 2017). The high level of leverage can be used as a joining tool and the constant repayment of the obligated debt prevent management from accessing free cash flow and investing in unprofitable or less valuable projects. This can lead to reducing agency conflict as it constraints managerial hedging and raising their productivity, thus, reducing managerial discretion in consuming too much bonus, which enhancing firm value (Jensen and Meckling, 1976).

In addition, firms can benefit from tax savings generated by leverage, thus, the market valuation of leverage can be positive (Modigliani and Miller, 1963). Leverage can be a positive influence on the use of cash flow by managers or a negative influence with the increasing risk of bankruptcy and the potential financial risk of pressure on liquidity (Gertler and Hubbard, 1993). The positive sign of leverage with Tobin's Q is also, consistent with De-La-Hoz, and Pombo (2016) who find that a one standard deviation increase in leverage increases Tobin's Q by 5.9 points when they studied the firm valuation of six Latin American countries for the period of 1997 to 2011. In addition, it is consistent with Short and Keasey (1999), who find a positive relationship between leverage and equity market in the UK firms. Moreover, firms tend to engage more in tax minimisation through obtaining a higher level of leverage and capital intensity (Stickney and McGee, 1982).

Dividend has a positive significant relationship with Tobin's Q in FTSE 350 at 5%. This can be explained that the shareholders of the large companies in the UK have the incentive to include in a stock market listing by ensuring an appropriate dividend policy to assure the occurring of regular trading activity (Cheffins, 2006). In addition, institutional shareholders do not directly monitor the firms; instead, they tend to encourage managers to pay higher dividends to enhance capital market monitoring (Kilincarslan and Ozdemir, 2018; Zeckhauser and Pound, 1990).

Table 0-19: Firm Value, Tax Minimisation and Corporate Governance Variables

VARIABLES	MODEL 350 Q	MODEL 350 ROA	MODEL 100 Q	MODEL 100 ROA	MODEL 250 Q	MODEL 250 ROA
PDs	8.480e (0.763)	0.004 (0.003)***	-8.88e-0 (0.675)	0.004 (0.000)***	0.000 (0349)	0.008 (0.004)**
TDs	.000 (0.362)	0.0099 (0.000)***	-1.07e (0.948)	0.007 (0.001)***	0.000 (0.846)	0.024 (0.008)***
STRDs	-0.000 (0.886)	0.050 (0.000)***	-0.000 (0.312)	0.050 (0.000)***	0.000 (0.046)**	0.148 (0.124)**
IOWN	-0.000 (0.253)	-0.0176 (0.506)	-0.000 (0.344)	-0.004 (0.884)	-0.000 (0.582)	-0.024 (0.372)
EREM	-0.005 (0.002)***	0.299 (0.301)	-0.003 (0.035)**	0.010 (0.953)	-0.006 (0.029)**	0.337 (0.216)
EM	0.006 (0.238)	0.689 (0.031)**	0.014 (0.253)	0.932 (0.511)	0.007 (0.111)	0.276 (0.460)
CI	0.379 (0.077)*	12.983 (0.075)*	1.041 (0.000)***	40.168 (0.003)***	0.066 (0.091)*	0.756 (0.822)
LEV	0.635 (0.000)***	2.063 (0.786)	0.297 (0.041)**	-20.056 (0.014)***	0.740 (0.000)***	2.710 (0.635)
FOS	0.000 (0.466)	-0.035 (0.362)	0.000 (0.288)	0.035 (0.740)	-0.000 (0.728)	-0.025 (0.248)
DIV	0.001 (0.004)**	-0.100 (0.134)	-0.002 (0.266)	-0.140 (0.270)	0.001 (0.002)***	-0.096 (0.033)**
Cons	0.314 (0.000)	12.429 (0.008)	0.193 (0.000)	8.158 (0.491)	0.373 (0.000)	13.342 (0.000)
N	483	497	184	186	299	311
R-squared (within)	0.3573	0.1898	0.6548	0.5592	0.4047	0.0989
R-squared (between)	0.1071	0.0001	0.0014	0.0009	0.2522	0.0063
R-squared (overall)	0.1174	0.0013	0.0001	0.0001	0.2636	0.018
F Prob > F	9.88 (0.000)		16.89 (0.000)			
Wald chi Prob > Chi2		129.80 (0.000)		310.53 (0.000)	134.51 (0.000)	26.35 (0.0033)

*Coefficient value and P-value in (brackets)

***, ** and * indicate significant at 1%, 5% and 10% respectively.

PDs: Permanent Differences, TDs: Temporary Differences, STRDs: Statutory Tax rate Differences, IOWN: Institutional Ownership, EREMEM: Executive Remuneration, EM: Earnings Management, CI: Capital Intensity, LEV: Leverage, FOS: Foreign Sales, DIV: Dividends

7.4.2.1.2 Tobin's Q, Tax Minimisation Components and Corporate Governance on FTSE 100

This subsection outlines the second estimation model application on FTSE 100 and as shown on the previous result of Hausman test, the model for this sample is fixed effects as follows:

$$Q_{it} = \beta_0 + \beta_1 PDs_{it} + \beta_2 TDs_{it} + \beta_3 STRDs_{it} + \beta_4 IOWN_{it} + \beta_5 EREM_{it} + \beta_6 EM_{it} + \beta_7 CI_{it} + \beta_8 LEV_{it} + \beta_9 FOS_{it} + \beta_{10} DI_{it} + \propto_i + \varepsilon_{it}$$

It can be noted from the table 7.19 above that the results of the FTSE 350 sample mainly reflects the results of the FTSE 100. Thus, similar to the FTSE 350 result, the table shows there is no significant relationship between tax minimisation components and Tobin's Q.

For corporate governance mechanisms, there is a negative relationship between executive remuneration and Tobin's Q at 95% in the FTSE 100, which reflects the result in the FTSE 350 as explained previously. This indicates the negative perception of investors towards executive remuneration, as mentioned in the previous FTSE 350 sample.

Similar to the previous result in the FTSE 350 for capital intensity and leverage, both have positive significant relationship with Tobin's Q at 99% and 95% confidence respectively. The 99% significant of capital intensity is because the FTSE 100 sample consist companies mostly from industrial sector and only two companies from technology sector as explained previously in this chapter.

7.4.2.1.3 Tobin's Q, Tax Minimisation Components and Corporate Governance on FTSE 250

This subsection outlines the second estimation model application on FTSE 250 and as shown on the previous result of Hausman test, the model for this sample is random effects as follows:

$$Q_{it} = \beta_0 + \beta_1 PDs_{it} + \beta_2 TDs_{it} + \beta_3 STRDs_{it} + \beta_4 IOWN_{it} + \beta_5 EREM_{it} + \beta_6 EM_{it} + \beta_7 CI_{it} + \beta_8 LEV_{it} + \beta_9 FOS_{it} + \beta_{10} DI_{it} + \propto_i + \mu_I + \varepsilon_{it}$$

The table 7.19 above shows STRDs has a significantly positive relationship with firm value at 95% confidence, which indicates the investors' positive perception of the overseas operation. In addition, it might explain that FTSE 250 overseas revenue has a positive impact on firm value, as a result of investors positive valuation of saving that generates from overseas operation which emphasises the result in the first model with Tobin's Q in the FTSE 250 mentioned above. However, the other tax minimisation components; PDs and TDs both have insignificant relationship with fime value.

Similar to the results for the FTSE 350 and FTSE 100 IOWN is insignificant for this sample; however, executive remuneration is significantly negative at 95%, which reflects on the FTSE 350 sample as explains above. This emphasises the negative perception of investors towards executive remuneration, which supports the agency view that higher executive remuneration might exists due to agency problem in the companies with dominant managers (Jensen and Neckling, 1976; Dah et al., Bebchuk and Fried, 2003; 2012; Tarkovska, 2017; Emmanuel Iatridis, 2018).

CI, LEV and DIV have similar results as the result of the FTSE 350. Concerning capital intensity, the relationship between capital intensity and firm market value is significantly positive at 90%. In addition, leverage has a positive significant relationship with Tobin's Q at 99% and dividend has a positive significant relationship with Tobin's Q in the FTSE 250 at 99%.

In understanding why the FTSE 100 has an insignificant relationship between firm value and dividend while the FTSE 250 has a significant and positive relationship, from the table 7.19 for the FTSE 100, the average mean of dividend is 0.98 percent and for the FTSE 250 is 1.96. This means that the FTSE 250 payout is double the average dividend of the FTSE 100, which may indicate one of the two scenarios. First, either shareholders in the FTSE 250 indirectly monitor the companies' through

encouraging managers towards paying dividends to increase capital market monitoring (Kilincarslan and Ozdemir, 2018; Zeckhauser and Pound, 1990).

Second, those companies with passive shareholders in term of their voting rights tend to pay more dividends compared with companies with active shareholders. The same case for companies with strong rights and higher managerial ownership (Harford et al., 2008), which apply on the FTSE 250 where the number of companies that have managerial ownership is 22 companies more than the FTSE 100 that have only 5 companies in the sample under investigation. In addition, in the existence of information asymmetry, shareholders consider dividends as a fundamental tool to measure managers' performance and believe it supports the reduction of agency cost that can result from shareholders' misinterpretation of accounts and can lead to an increase in firm value (Berkman et al., 2002). From an institutional ownership perspective, institutional investors have a significantly positive effect on dividend pay-out, supporting the view that UK institutional shareholders are effectively urging companies to distribute dividends (Al-Najjar and Belghitar, 2014). From a risk perspective, and consistent with agency theory, firms with a low risk are more likely to distribute their income, which leads to an increase in dividend pay-out to shareholders (Chang and Rhee, 1990).

To conclude, the results of the relationship between tax minimisation and firm value did not improve after adding the external and internal corporate governance mechanisms on al samples. However, the positive impact of PDs on firm value measured by Tobin's Q has attenuated after considering theses mechanisms, which provide evidence that corporate governance mechanisms play a moderating role on the relationship between tax minimisation and firm value (Desai and Dharmapala, 2006).

7.4.2.2 Firm Value Measures by ROA

This subsection outlines the results of the second estimation model considering ROA as a dependent variable on the FTSE 350 sample and then extending the results to the FTSE 100 and FTSE 250 to explore the differences that underpin these samples and

explain the reason underlying these differences. In addition, the models utilising ROA as a dependent variable for the FTSE 350, FTSE 100 and FTSE 250 are random effects as confirmed by Hausman test and the other robustness test that are mentioned in this chapter.

7.4.2.2.1 ROA, Tax Minimisation Components and Corporate Governance on FTSE 350

This subsection shows the result for the second model, which considers the relationship between tax minimisation components namely; PDs, TDs and STRDs and ROA with consideration of the two indicators of corporate governance mechanisms namely; IOWN and EREM on the FTSE 350.

The analysis model for this sample is random effects as follows:

$$ROA_{it} = \beta_0 + \beta_1 PDs_{it} + \beta_2 TDs_{it} + \beta_3 STRDs_{it} + \beta_4 IOWN_{it} + \beta_5 EREM_{it} + \beta_6 EM_{it} + \beta_7 CI_{it} + \beta_8 LEV_{it} + \beta_9 FOS_{it} + \beta_{10} DI_{it} + \propto_i + \mu_I + \varepsilon_{it}$$

Similar to the result of the first model for the three samples, tax minimisation components have significantly positive relationship with ROA in FTSE 350, which reflects on both FTSE 100 and FTSE 250.

In contrast, there is an absence of external and internal corporate governance effect on the relationship under investigation when considering ROA as a dependent variable for all study samples. This result is consistent with Akbar el at., (2016) who find that compliance with corporate governance regulations do not have any relationship with firm performance measured by ROA in the UK non-financial companies for the period of 1999 and 2009. In addition, they suggest that studies that find any positive relationship might be biased as they ignore the potential for endogeneity.

Earnings management has a positive relationship with ROA only in the FTSE 350 sample, which is similar to the result for the FTSE 350 in the first model that explained above. Also, CI is significant and positive AT 90%, similar to the previous second model with Tobin's Q results in the FTSE 350 and the results for the first model.

7.4.2.2.2 ROA, Tax Minimisation Components and Corporate Governance on FTSE 100

This subsection sketches the results for the second model, which examines the relationship between both tax minimisation components (PDs, TDs and STRDs) and corporate governance proxies; (IOWN and EREM) and ROA using FTSE 100 sample. The result of this relationship shows a statistically positive between tax minimisation components namely PDs, TDs and STRDs and ROA at 99% confidence. This result might confirm the discussion mentioned above suggested by Akbar et al., (2016) that the purpose of engaging in tax reduction is to increase profitability and adopting good corporate governance mechanisms and compliance with their regulations are not determinant of firm performance.

In addition, CI has a positive relationship with ROA, which reflects the positive relationship in FTSE 350 and the interpretation of this result is similar to the previously mentioned above.

However, leverage is significantly negative when the firm value is measured by ROA in FTSE 100 only similar to the result in the first model, which is opposite to the other samples results for the two models.

7.4.2.2.3 ROA, Tax Minimisation Components and Corporate Governance on FTSE 250

This subsection draws the results for the second model, which examines the relationship between both tax minimisation components (PDs, TDs and STRDs) and both corporate governance proxies IOWN and EREM, and ROA for FTSE 250 sample. This sample shows a statistically significant result between tax minimisation components PDs, TDs and STRDs, and ROA, which is consistent with the result and suggestion of the previous samples.

On the other hand, the dividend has controversial results with ROA compared with Tobin's Q results, in terms of using the different measurements of firm value, similar to the case of leverage with both Tobin's Q and ROA. This is consistent with the

empirical studies that find a positive relationship between ROA and tax minimisation (Delgado et al., 2018; Delgado et al., 2012; Fernández-Rodríguez and Martínez-Arias, 2011; Chen et al., 2010; Noor et al., 2010; Noor, et al., 2008), which indicates that profitable companies encounter a higher tax burden than companies with less profitability, therefore, those companies are more likely to engage in tax minimisation than others.

The conclusion for the second model utilising two different measurements for firm value in the three samples is that there is no statistically significant relationship between tax minimisation components and Tobin's Q in the three samples, although with adding corporate governance proxies to the model there is only one improving result with STRDs in FTSE 250. There is a significant positive relationship between the three tax minimisation components and ROA in the three samples at 99 % confidence.

Institutional ownership has no significant results in all samples with both firm value measurements, which concurs with Navissi and Naiker (2006) who find no relationship between passive institutional investors and firm value. This suggests that passive institutional shareholders are not compatible with interest alignment and entrenchment assumptions. In contrast, executive remuneration has a significantly negative relationship with Tobin's Q in all samples, which indicates the assumption that executive remuneration is associated with agency issues. This result is consistent with Bechuk, et al (2011) who find a negative relationship between CEO pay slice and firm value measures by Tobin's Q.

Earnings management has only one significant result with ROA in FTSE 350 similar to the results in the first model.

Capital intensity is significantly positive with both measurements of firm value Tobin's Q and ROA in both sample FTSE 350 and FTSE 100; however, it is not significant in FTSE 250 with ROA.

Leverage is significantly positive with Tobin's Q in the three samples FTSE 350, FTSE 100 and FTSE 250 at 99 percent confidence; however, it's significantly negative with ROA only in FTSE 100 at 99 percent confidence.

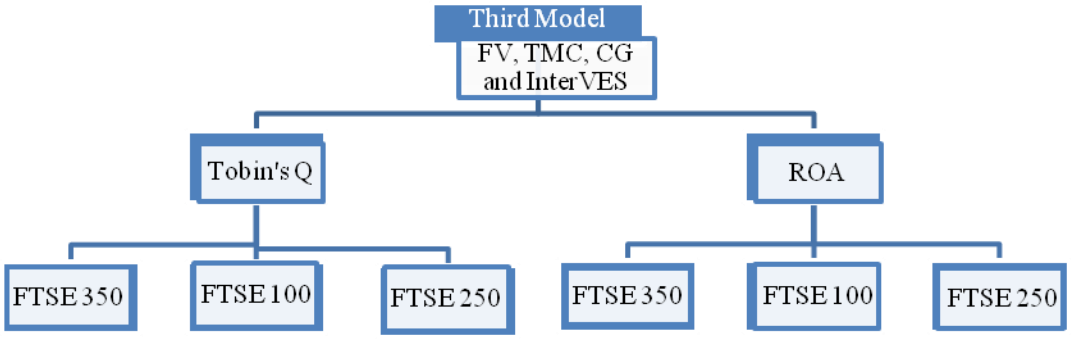
Finally, Dividends is significant and positive with Tobin's Q in both FTSE 350 and FTSE 250 and significant negative with ROA only in FTSE 250. Foreign sales have no significant results.

To conclude this subsection that shows the examination of the relationship between tax minimisation components and firm value measured by ROA with considering corporate governance mechanisms in this relationship in the three samples; FTSE 350, FTSE 100 and FTSE 250 respectively. The result shows that the three components of tax minimisation have a significantly positive impact on firm performance, which explains that the purpose of engaging in tax minimisation strategies by managers is to increase firm performance. Although companies tend to comply with corporate governance regulations, this compliance is not a determinant of the firm performance in the UK as suggested by Akbar et al., (2016).

7.4.3 Model 3: Firm Value Tax Minimisation and Corporate Governance with the Interaction Variables.

With regards to the moderating role that corporate governance variables play in the relationship between tax minimisation and firm value. First, the below estimation model is further estimated including corporate governance variables namely; Institutional ownership (IOWN) and executive remuneration (EREM) and with adding the interaction variables of corporate governance with tax minimisation components (PDOWN- TDOWN-STRDOWN- PDEREM- TDEREM-STRDEREM) to the previous second estimation model. These variables are utilised to examine whether the relationship between tax minimisation components and firm value is contingent on the intensity of the corporate governance structure. The results are shown in Table 7.20 below, in which columns 2 and 3 represent FTSE 350 sample using the two measurements of firm value, columns 4 and 5 represent FTSE 100 and columns 6 and 7 Represent FTSE 250. Figure 7.4 explains the distribution of the variables and different models for all samples.

Figure 0-4: Explanation of the Third Model Structure



Source: Author[22]

This section presents the results of the third model, which analysing the relationship between firm value, tax minimisation components, corporate governance and the interaction variables to examine whether the internal and external corporate governance mechanisms play a vital role in this relationship or not. Similar to the

[22] FV: Firm value, TMC: Tax minimisation components, InterVES: Interaction variables.

structure of the previous two models, this section outlines the findings in table 7.20 for both firm value measures, Tobin's Q and ROA separately for the three samples. In this interaction variables results, the assumption is that the individual variables that are included in the interaction variables are equal to zero (Wooldridge, 2010).

7.4.3.1 Firm Value Measures by Tobin's Q.

This subsection includes three subsections to present the results of the three samples namely FTSE 350, FTSE 100 and FTSE 250 respectively. Table 7.20 below shows the results with including cross-section clustered for standard errors.

7.4.3.1.1 Tobin's Q, Tax Minimisation Components, Corporate Governance and the interaction variables on FTSE 350

This subsection is focused on the third estimation model application on FTSE 350 and as shown on previous result of the Hausman test and other robustness tests, the model for this sample is fixed effects as follows:

$$Q_{it} = \beta_0 + \beta_1 PDs_{it} + \beta_2 TDs_{it} + \beta_3 STRDs_{it} + \beta_4 IOWN_{it} + \beta_5 EREM_{it} + \beta_6 PDs_{it} * IOWN_{it} + \beta_7 PDs_{it} * EREM_{it} + \beta_8 TDs_{it} * IOWN_{it} + \beta_9 TDs_{it} * EREM_{it} + \beta_{10} STRDs_{it} * IOWN_{it} + \beta_{11} STRDs_{it} * EREM_{it} + \beta_{12} EM_{it} + \beta_{13} CI_{it} + \beta_{14} LEV_{it} + \beta_{15} FOS_{it} + \beta_{16} DI_{it} + \propto_i + \varepsilon_{it}$$

IOWN: Institutional Ownership.
EREM: Executive Remuneration.

Table 7.20 below shows the result of FTSE 350 sample with Tobin's Q in the first column. The assumption is all individual variables that are included in the interaction variables are considered to equal zero as mentioned above (Wooldridge, 2010).

Table 0-20: Firm Value, Tax Minimisation, Corporate Governance and Interaction Variables

VARIABLES	MODEL 1 Q FTSE 350	MODEL 1 ROA FTSE 350	MODEL 2 Q FTSE 100	MODEL 2 ROA FTSE 100	MODEL3 Q FTSE 250	Model3 ROA FTSE 250
PDs	-3.72e-06 (0.917)	-0.0015 (0.287)	-0.0000 (0.020)**	0.0004 (0.831)	0.0000 (0.022)**	0.0067 (0.239)
TDs	-0.0000 (0.363)	0.0038 (0.191)	-0.0000 (0.006)***	0.0017 (0.552)	0.0000 (0.765)	0.0528 (0.145)
STRDs	0.000 (0.864)	0.0068 (0.561)	-0.0003 (0.121)	0.0196 (0.125)	0.000 (0.090)*	0.101 (0.358)
IOWN	-0.0006 (0.249)	-0.0195 (0.423)	-0.0003 (0.467)	-0.0048 (0.872)	-0.0002 (0.691)	-0.0304 (0.223)
EREM	-0.0065** (0.039)	0.5854 (0.004)**	0.0077 (0.414)	0.954 (0.264)	-0.0087 (0.543)	-0.073 (0.893)
PDOWN	1.42e-06 (0.306)	0.0005 (0.000)***	3.96e-06 (0.002)***	0.0004 (0.003)***	-4.39e-06 (0.051)*	0.00039 (0.037)**
TDOWN	2.07e-06 (0.029)**	0.0003 (0.001)***	2.47e-06 (0.000)***	0.0003 (0.008)***	-1.73e-06 (0.766)	-0.0006 (0.342)
STRDOWN	-7.08e-06 (0.584)	0.0035 (0.000)***	5.12e-06 (0.608)	0.0026 (0.001)***	-0.000 (0.284)	0.0031 (0.283)
PDEREM	-5.33e-06 (0.536)	-0.0028 (0.001)***	-0.0000 (0.106)*	-0.0027 (0.071)*	0.0001 (0.555)	0.0275 (0.097)*
TDEREM	-0.000 (0.370)	-0.0015 (0.376)	8.90e-06 (0.664)	-0.0007 (0.718)	0.000 (0.398)	0.0117 (0.392)
STRDEREM	0.000 (0.504)	0.0054 (0.701)	-0.0000 (0.573)	0.000 (0.988)	0.000 (0.853)	0.0479 (0.737)
EM	0.005 (0.337)	0.931 (0.135)	0.0109 (0.301)	0.753 (0.337)	0.0088 (0.089)*	0.1061 (0.712)
CI	0.376 (0.077)*	13.322 (0.062)*	1.0263 (0.000)***	39.342 (0.002)***	0.062 (0.116)	1.021 (0.763)
LEV	0.636 (0.000)***	2.2780 (0.767)	0.3043 (0.038)**	-20.162 (0.004)***	0.734 (0.000)***	2.782 (0.629)
FOS	0.000 (0.453)	-0.035 (0.353)	0.001 (0.192)	0.0469 (0.659)	-0.000 (0.784)	-0.023 (0.314)
DIV	0.0013 (0.002)***	-0.0743 (0.179)	-0.002 (0.286)	-0.107 (0.345)	0.0008 (0.034)**	-0.0746 (0.014)**
Cons	0.315 (0.000)	12.412 (0.007)	0.1855 (0.000)	7.700 (0.505)	0.372 (0.000)	13.578 (0.000)
N	483	497	184	186	299	311
R-squared (within)	0.3656	0.2371	0.6943	0.6202	0.4071	0.1513
R-squared (between)	0.1094	0.0004	0.0007	0.0005	0.2644	0.0070
R-squared (overall)	0.1205	0.0024	0.000	0.000	0.2752	0.0230
F Prob > F	30.23 (0.000)		33.81 (0.000)			
Wald chi Prob > Chi2		434.81 (0.000)		1782.07 (0.000)	148.41 (0.000)	119.46 (0.000)

*Coefficient value and P-value in (brackets). ***, ** and * indicate significant at 1%, 5% and 10% respectively. PDs: Permanent Differences, TDs: Temporary Differences, STRDs: Statutory Tax rate Differences, IOWN: Institutional Ownership, EREMEM: Executive Remuneration, PDOWN: Permanent Differences*Institutional ownership, TDOWN: Temporary Differences* Institutional Ownership, STRDOWN: Statutory Tax Rate Differences* Institutional ownership, PDEREM: Permanents Differences* executive Remuneration, TDEREM: Temporary Differences* Executive Remuneration, STRDEREM: Statutory Tax Rate differences* Executive Remuneration, Earnings Management, CI: Capital Intensity, LEV: Leverage, FOS: Foreign Sales, DIV: Dividends.

The result of interaction variables shows that there is only one interaction variable that has a significant positive relationship with Tobin's Q in FTSE 350, which is TDOWN. It is consistent with the prediction of agency theory of tax minimisation, which suggests a positive relationship between tax minimisation and firm value for firms with high levels of institutional ownership (Desai and Dharmapala, 2009; Wilson, 2009). This also, confirms the moderating role of corporate governance in this relationship that suggests the impact of tax minimisation on the firm's after tax value is greater for companies with powerful institutional ownership. This significant relationship is derived from the FTSE 100 result. In addition, this result considers only temporary tax differences, which is a timing difference that means the tax saving generated from such a component will reverse in the future. This can be interpreted from the benefit and risk point of view as shareholders value tax minimisation strategy that generated by timing difference and resulted from the difference in regulations applied by firm, thus, the benefit of this component exceeds its risk.

The result in this model also, confirms the statistic significant of most of the control variables namely; CI, LEV and DIV, and the explanation for this result is as follows;

Capital intensity has a significant positive relationship with firm value in FTSE 350 at 90%. This positive relationship is driven from only the FTSE 100 that has a positive significant relationship with both Tobin's Q and ROA at 99%; however, this relationship for FTSE 250 is insignificant. This is in alignment with US studies that find a positive relationship between capital intensity and firm performance, for example, Lee and Xiao (2011) find a U-shape relationship in the period of 2000s for hotels and restaurants, however, this relationship was insignificant before applying the robustness test.

This positive signal can be explained also, as the high level of the capital intensity of a company can be as a result of increasing quality and productivity, thus, positively valued by investors (Shahean & Malik, 2012). Besides, Zhang et al., 2018 find a positive relationship between capital intensity and firms utilising high-commitment work systems (HCWS).

Leverage and Dividend both have a positive relationship with Tobin's Q. The positive sign of leverage can be interpreted by signalling theory, which assumes that debt is positively associated with firm value especially in the existence of information asymmetry (Ibhagui, and Olokoyo, 2018). Also, the determination of the positive sign of leverage with firm value relies on firm size, where large companies can borrow as much as they wish as they have a better reputation (Halov, 2006; Ibhagui, and Olokoyo, 2018). According to Bradley et al. (1984), companies will have a high level of leverage when the current value of tax benefits is high and/ or the current level of expected leverage cost is low. Thus, the optimal capital structure of a company will include a trade-off between debt tax benefit and several leverage costs such as debt agency cost and bankruptcy; hence the relationship is positive if the leverage costs are low.

In addition, Bradley et al. (1984) find that the leverage ratios level varies across industries more than within industries. This finding also aligns with Jensen (1986) who states that leverage can be considered as a monitoring tool to reduce agency problems, which enhances firm value. Leverage can also, increase firm value via tax deduction (Modigliani and Miller, 1963) and as a positive sign to the capital market (Fama and French, 1998).

Dividends has a significant positive relationship with Tobin's Q for FTSE 350 at 99% that relationship is driven mainly from FTSE 250 at 95%. This references agency theory that paying dividends can help in reducing the conflicts of interest between managers and owners (Jensen, 1986). This positive relationship is consistent with previous studies that find dividends send a positive sign to the institutional investors about the high level of performance that the company is achieved (Al-Najjar and Belghitar, 2014). In addition, according to Lysandrou and Stoyanova (2007), UK institutional investors are more likely to release cash out of the collective portfolio and re-equilibrium resolutions.

Moreover, FTSE 350 companies' average leverage attributes to both indices, in which, average leverage is 0.22 for FTSE 100 and 0.21 for FTSE 250. This might reflect on the low average dividend paid for FTSE 100 (0.98) comparing with FTSE 250 (1.96)

that pays a high level of dividend, which is consistent with the debate that UK institutional investors can insist companies distribute cash even if they are low in profitability. In addition, the imperfect external market control and the deficiency of effective monitoring that categorises the corporate sector in the UK (Ozkan and Ozkan, 2004) can lead to two defaults in which institutional ownership is dispersed and ineffective in exercising their monitoring rights and are not being keen on extending this further.

For foreign sales, there is an insignificant relationship between firm value and foreign operation for all samples.

7.4.3.1.2 Tobin's Q, Tax Minimisation Components, Corporate Governance and the interaction variables FTSE 100

Table 7.20 above shows the result of the relationship between tax minimisation components and firm value measured by Tobin's Q for the FTSE 100, in which PDs and TDs are significantly negative at 95% and 99% respectively, which is consistent with Abdul Wahab and Holland (2012). Those individual variables that are included in the interaction variables are assumed to equal zero following Wooldridge, (2010) as explained above.

The result also is reversed after considering the external and internal mechanisms of corporate governance namely institutional ownership (IOWN) and executive remuneration (EREM). The Interaction between tax minimisation components PDs and TDs with Institutional ownership (PDOWN, TDOWN) are significantly positive both at 99% confidence for FTSE 100 as predicted by agency theory of tax minimisation. It suggests a positive relationship between tax minimisation and firm value for firms with high levels of institutional ownership (Desai and Dharmapala, 2009). This confirms the moderating role of corporate governance in this relationship, which suggests the impact of tax minimisation on the firm's after tax value is greater for companies with high level of institutional ownership. In addition, it explains that considering FTSE 100 separately from the FTSE 250 can present significant results as the two indices have different characteristics and levels of onerous regulations. In addition, the interpretation of this result for the FTSE 100 could be for two reasons. First, the FTSE 100 companies are the top 100 largest companies most of their

operations are oversea, less affected by the UK policies and economics and are subject to a more rigorous information disclosure so they are less affected by the regulations' change. Besides, the FTSE 100 has more restrictive corporate governance and compliance regulations (LSE, 2016).

Therefore, it may be that the FTSE 100 firms are regarded as risk-free whereas institutional investors believe that as the pecking order rises, so does the risk. Thus, from an agency perspective, investors could value the engagement of FTSE 100 companies' in tax minimisation strategy as it is considered as value-added to shareholders' wealth. In respect of this, investors perceive institutional ownership as are playing a vital role in monitoring the management's activities and are increasing the level of scrutiny for managerial actions, which is interpreted by Desai and Dharmapala (2009) as good governance. Moreover, FTSE 100 are the top largest companies that have the ability to pay for highly experienced accounting companies that help them in more complicated tax saving strategies that lead to increase firm value.

Second, FTSE 100 companies have a lower risk profile, also, the UK is considered as a country with strong investor protection, so from a risk and benefit perspective, those companies might be valued by investors with regards to their tax strategy as investors could perceive tax activities as value-added and lead to an increase in shareholders' value. The institutional ownership, in this case, is active and playing their monitoring role in managers' activities, thus increasing the quality of companies' earnings (Zhong et al., 2017). Finally, although, TDs considers as timing differences and will be reversed in the future, PDs is permanent differences and will not be reversed in the future, thus, is considered as tax savings.

Concerning, the interaction between permanent differences and the internal corporate governance mechanism namely; executive remuneration. There is only a significant relationship with Tobin's Q for FTSE 100 and its negative at nearly 90% confidence, although the coefficient is considerably small. It is consistent with prior research (Nissim, 2004; Desai and Dharmapala, 2005; Hanlon 2005) from executive remuneration point of view, shareholders do not prefer engaging in tax strategy

created by managers, despite the after-tax return preference, as they perceive this return as a greater opportunity for managerial value diversion, which will not increase shareholders value. For example, Bebchuk and Fried (2003) provide an overview of the agency problem between shareholders and the board, suggesting that the effective occupation of the board by CEO, which leads to ease the diversion of rent in shape of excessive remuneration. This view leads to increasing concern about the potential negative aspects of adopting high-powered incentives to encourage improving firm performance (Desai and Dharmapala, 2005).

In addition, this result resonates with the perception of the agency issue through executive remuneration and concurs with Florackis (2008), who studies the UK companies and finds a positive relationship between a low level of executive salary and asset turnover. Nevertheless, this relationship turns negative when the salary is at a higher level; which, concurs with the research that perceives the agency problem through executive remuneration. Moreover, this explains the negative sign of the interaction variable PDEREM in FTSE 100 with both measurements of firm value. In addition, there is no significant relationship for the other two interaction variables TDEREM and STRDEREM in FTSE 100. For TDEREM,it may be because investors are aware of the timing differences nature and do not consider it as a tax reduction, hence, engaging in timing tax difference is not for the taxation purpose. Likewise, investors know that those timing differences will reverse in the future and the firm has to pay the tax owed when it becomes dues. Therefore, the timing tax differences component has no impact on executive remuneration.

The other significant relationship is revealed between both CI and LEV and Tobin's Q similar to the previous results in both models.

Capital intensity has a significant positive relationship with firm value in FTSE 350 for both Tobin's Q and ROA at 90%. This positive relationship is driven from the FTSE 100 that has a positive significant relationship with both Tobin's Q and ROA at 99%. This is in alignment with US studies that find a positive relationship between capital intensity and firm performance, for example, Lee and Xiao (2011) find a U-shape relationship in the period of 2000s for hotels and restaurants.

This positive signal can be explained also, as the high level of the capital intensity of a company can be as a result of increasing the quality and productivity, thus, positively valued by investors (Shahean & Malik, 2012). Besides, Zhang et al., (2018) find a positive relationship between capital intensity and firms utilising high-commitment work systems (HCWS).

7.4.3.1.3 Tobin's Q, Tax Minimisation Components, Corporate Governance and the interaction variables on FTSE 250

The result of the relationship between tax minimisation components; PDs and STRDs and firm value measured by Q, is also significant and positive for FTSE 250 at 95% and 90% respectively. It is opposite to FTSE 100 result, however, the assumption is that they are equal to zero as explained above at the beginning of this subsection.

Considering the interaction between permanent tax differences and the external mechanism of corporate governance namely institutional ownership, the PDOWN result is significantly negative for FTSE 250; the interpretation of this specific result could be for three reasons. First, FTSE 250 companies reflect the UK economy and policies as most of their operations are in the UK, so they are more affected by taxation economic and policy reforms. As a consequence, the interaction between permanent differences and institutional ownership (PDOWN) is significant and negative. The agency theory explains that tax minimisation strategy can lead to tax risks and/or managerial opportunism, du to shifting firm value privately to managers (Desai and Dharmapala, 2009, Desai et al., 2007), which is especially in companies with some levels of managerial ownership (Morck et al., 1988). The view is supported in various recent studies (Abdul Wahab and Holland, 2012; Chen et al., 2010; Desai Dharmapala, 2009), which consider tax minimisation activity not only involves high costs but also, those costs might exceed any benefits shareholders can receive. In addition, FTSE 250 companies are more diverse than FTSE 100 with a mixture of both institutional and managerial ownership, which could have three primary components as follows:

First, a separation between owners and control, according to agency theory, this separation between managers and shareholders leads to information asymmetry as a result of the ambiguity of tax strategy information that is available for shareholders (Jensen and Meckling, 1976). Thus, the information asymmetry in tax minimisation leads managers to divert tax saving benefit to their wealth, so tax minimisation is not considered as wealth creation for shareholders as any benefit might accrue to activities that involve risks (Chen et al., 2010; Desai and Dharmapala, 2009; Slemrod, 2005).

Second, the negative significance of the interaction variable PDOWN could be as a result of the shareholders' perception of permanent differences as aggressive activities towards minimising tax compared to other tax minimisation components (Frank et al., 2009). This could result in some underlying additional risks such as reputation costs and penalties (Chen et al., 2010; Slemrod, 2005).

Third, the controlling shareholders' interest at the expense of other shareholders' interests, which is known as the principal-principal problem (Young et al., 2008). Dominant shareholders; in concentrated shareholding structured companies; tend to monitor management and have the incentives to behave in the company's interest; however, this could seriously affect minority shareholders when the private benefits of control exceed the losses from this position of power (Aguilera and Crespi-Cladera, 2016).

Concentrated ownership means the controlling shareholders can be individuals, families, financial institutions and other different corporations. Thus, there is a conflict between managerial control and any dispersion to outside shareholders, likewise, between majority controlling shareholders and those in the minority. In the UK, the nature of ownership favours dispersion however, they still encounter hostile takeovers, in which when the dispersed shareholders accept the tender offer, the bidder acquires control of the company and thus, controls the management, therefore, a takeover can be considered as rapid-fire mechanisms for blockholders seeking to cash in their investment (Franks and Mayer, 1990).

Moreover, the expropriation dilemma influenced by blockholders can be more significant when other shareholders are dispersed and have various types of cash flow claims and blockholders have an incentive towards taking excessive risks, which could result in other minority shareholders being subject to the cost of losses (Jensen and Mckling, 1976). As FTSE 250 companies have more managerial ownership percentage and shareholders are dispersed with different patterns of cash flow claims, also, investors may be aware of the controlling behaviour of managers as well as their tendency towards risk, hence, they might negatively perceive tax minimisation strategy behaviour by managers, when they take in their consideration the nature of ownership structure. This can be as a result of investors' fear of potential risks underlying this type of strategy.

This negative result of PDOWN is consistent with the agency cost theory of tax minimisation that information asymmetry linked to tax minimisation can lead to either ethical risks or fear of ethical risks. The negative sign of permanent difference is aligned with Abdul Wahab and Holland (2012) who find a negative relationship between PDs and firm value, which explains that there are some sources of income included in accounting income but excluded from taxable income. This type of tax minimisation is the most beneficial source; however, it underlies the highest of both risks and costs (Abdul Wahab and Holland, 2012).

Interestingly, earnings management has a positive significant relationship at 90% with Tobin's Q in the FTSE 250, which might have number of explanations. First, companies could manage their earnings to meet the targets and thresholds set, which could attract potential investors and provide a positive picture of company's performance as well as prevent negative earnings surprises (Gore et al., 2007). For example, Caneghem, (2002) finds that UK listed companies have a behavioural tendency of rounding up income before tax, reported in the annual report by increasing the first digit to a one-digit when managers face a nine-digit in the second position.

Second, In addition, earnings management is not only about rounding up earnings, it is also, used by managers to meet the earning based compensation target (Guidry et

al., 1999), mange debt agreement (Roychowdhury, 2006), taxation (Adhikari et al., 2005) and CEO changes (Wilson and Wang, 2010). This positive sign is consistent with Haga et al., (2018) who study the real earnings management in both public and private companies in the UK and provide evidence that public companies tend to engage in real earnings management via real operation activities than private companies as a result of stock market pressure. This positively significant result can be interpreted, as public companies are more likely to manage their earnings in aggressively anticipating future trends. The well-known billionaire investor Waren Buffett quotes "*managers that always promise to make the numbers will at some point be tempted to make up the numbered"*.

Leverage has a significant positive relationship with Tobin's Q, similar to the results for FTSE 350 and FTSE 100. Dividend also has a significant positive relationship with Tobin's for FTSE 250 at 95% that relationship is reflected on FTSE 350.

7.4.3.2 Firm Value Measures by ROA

This subsection outlines the results of the third estimation model considering ROA as a dependent variable on FTSE 350 sample and then extending the results to FTSE 100 and FTSE 250 to explore the differences underpin these samples and explain the reason underlying these differences. In addition, the models utilise ROA as a dependent variable for FTSE 350, FTSE 100 and FTSE 250 are random effects as confirmed by the Hausman test and the other robustness tests that are mentioned at the beginning of this chapter.

7.4.3.2.1 ROA, Tax Minimisation Components, Corporate Governance and the interaction variables on FTSE 350

With regards to the FTSE 350 and firm value measured by ROA, when the interaction terms related to institutional ownership and executive remuneration are included the results become significant. For example, the relationship between ROA and the three interaction variables, PDOWN, TDOWN and STRDOWN is significantly positive at 99%. This confirms the previous assumption mentioned above.

In contrast, the only significant relationship between interaction variables of tax minimisation components and the internal corporate governance mechanism EREM, is that PDEREM has a negative and significant relationship with ROA at 99% confidence. This finding emphasises the previous results' interpretation for FTSE 100 with Tobin's Q.

For the control variables, there is a positive significant relationship between capital intensity and ROA at 90% similar to the FTSE 350 results with Tobin's Q. there is no significant result for the other control variables EM, LEV, FOS, and DIV.

7.4.3.2.2 ROA, Tax Minimisation Components, Corporate Governance and the interaction variables on FTSE 100

When ROA becomes the dependent variable, the positive significance of the result covers all the three interaction terms, PDOWN, TDOWN and STRDOWN. The explanation of the significance of the three institutional ownership interaction terms for FTSE 350 reflects the FTSE 100 significance result. The result confirms also the external corporate governance structure has a major impact on ROA and tax minimisation components in particular PDs, TDs and STRDs. In addition, PDEREM has a negative relationship with ROA, which similar to the result for FTSE 350.

Capital intensity has a positive relationship with ROA AT 99% that is similar to the previous results for FTSE 100 with Q and FTSE 350 with Q and ROA. In contrast, the negative sign of leverage is consistent with the previous research (Abdul Wahab and Holland, 2012) who find a significant negative relationship between firm value and leverage utilise a sample of UK firms from 2005 to 2007.

7.4.3.2.3 ROA, Tax Minimisation Components, Corporate Governance and the interaction variables on FTSE 250

The result in this sample has more significance in the interaction variables with ROA than with Tobin's Q, in which PDOWD has a positive relationship with ROA at 95% confidence that is opposite to the results with Tobin's Q. This means investors' valuations do not coincide with managers' perceptions.

In addition, PDEREM has a positive relationship with ROA at 90% confidence, although this variable is not significant when the dependent variable is Tobin's Q and it is negative with FTSE 100 sample. That could mean the executive salary is at a higher level for FTSE 100 compared to FTSE 250 and investors observe permanent differences as an opportunity for managers to shift the resource to themselves through remuneration.

The negative sign of dividend with ROA for FTSE 250 might be interpreted as firms during the period under investigation distribute pay-out dividends even with a negative return on assets (ROA), which can be noted from the average dividend of FTSE 250 (1.96) that is double the average dividend of FTSE 100 (0.98).

To conclude, internal and external corporate governance mechanisms can be perceived as a moderating tool in tax minimisation strategy, as they might influence tax strategy in direct and indirect ways. This moderating role is achieved utilising various methods including ownership structure and executive remuneration. It is crucial to consider that the basis of corporate governance intervention is highly correlated with agency problems. The conflict between shareholders and managers' interests is continuous, due to the separation of the two parties of right and control, which creates information asymmetry that is in managers' favour. As a result, the relationship between tax minimisation and corporate governance might go in different directions; positive or negative depending on the perceptions of both shareholders and managers. According to dividend policies, it can be utilised as corporate governance mechanisms, therefore, it can consider as a proxy to remuneration in reducing the agency conflict between the two parties; the agent and principle (Dong and Ozkan, 2008).

7.5 Conclusion

This research uses a unique set of tax reconciliation data, which was collected manually from the annual reports of FTSE 350 non-financial companies for the most recent data available for the period from 2014 to 2016. This data provides the most comprehensive details of book tax differences and is not available in a ready format. This involves the collecting of information related to profit before tax, taxable income, current UK and overseas tax expenses, the UK statutory tax rate, overseas tax rate, deferred tax expenses. The reason behind using this unique type of data is to provide a deeper intuitive understanding and explanation of the relationship between book tax differences' components and investors' reaction towards these components in their firms' valuation. Furthermore, this study also provides further insight into the reason underlying engaging in tax minimisation activities by managers, even though, these activities might be negatively valued by investors. These different perceptions between managers and investors are illustrated by using both Tobin's Q and return on assets as a dependent variable and then comparing their results.

Analysing the whole sample FTSE350 and then splitting it to FTSE100 and FTSE 250 to obtain a more insightful view concerning the findings for every group, as they might act differently in a way that can affect the results of the overall sample. This is considered as a contribution to knowledge in a tax research context.
The findings also, provide a deeper understanding of the moderating role of the two variables of both internal and external corporate governance mechanisms and the effect of their interaction with tax minimisation on investors' and managers' valuation alike.

Finally, the findings offer an explanation, how book tax differences provide valuable information for investors and managers alongside all stakeholders. Hence, this shows that considering the information that results from measuring book tax differences can add useful information to the investors in the stock market.

To summarise, the results of this research provide awareness about the importance of tax minimisation activities from investors' perspectives. Investors are noted to

positively value tax minimisation activities in FTSE 250 when considering tax minimisation components solely, which indicates that tax minimisation is regarded as a source of wealth creation for investors. This finding could be due to investors positively value tax minimisation (Drake, Lusch and Stekelberg, 2019, Inger, 2014). Although Abdul Wahab and Holland (2012) find a negative relationship between tax minimisation and firm valuation, this research completed the picture by stating that the relationship can vary within the different indices. This positive relationship is observed to be mainly related to permanent tax differences (PDs) and statutory tax rate differences (STRDs) and both are not significantly different from each other as both are significant at the ten percent level, which indicates that there is no different valuation effect between them. This result supports the first hypothesis that there is a positive relationship between tax minimisation components and firm value.

Examining the embodiment of external and internal corporate governance mechanisms on the firm valuation and tax minimisation components relationship grants higher STRDs significant degree compared from the initial results stated above for FTSE 250 at 90% to 95% with IOWN and EREM. Whilst, this suggests that in considering corporate governance mechanisms, investors seem to positively value tax minimisation generated from overseas tax rate differences, the coefficient estimates of STRDs is not significantly different from the particular coefficient in the first model without corporate governance. Furthermore, considering corporate governance weakens the PDs results as it becomes insignificant. This result partially supports Desai and Dharampal's (2009) assumption on the significance of corporate governance efficiency to investors, in particular, the role that corporate governance mechanisms play to identify investors' apprehension concerning managerial opportunisms in tax minimisation decisions.

The interactions between corporate governance mechanisms and tax minimisation components emphasise the relationship and enhance it even further, confirming that there is a statistically significant relationship between tax minimisation components and both measures of firm value. However, the relationship differs depending on the measures used and the index. In which, the interaction between the external

corporate governance mechanism namely institutional ownership and the three tax components shows that there is a significantly positive relationship between permanent tax differences interaction and Tobin's Q in FTSE 100. However, this relationship becomes significantly negative with FTSE 250. This difference in the outcomes might be as a result of the different perceptions of the investors in both indices as explained in the chapter above. In addition, there is a significant positive relationship between temporary tax differences interaction with institutional ownership and Tobin's Q in both FTSE 350 and FTSE 100; however, this relationship has no significance in FTSE 250. Again, this emphasises that both indices have different perceptions, which influence the outcomes.

The internal corporate governance mechanism namely executive remuneration has only a significant relationship in the case of the interaction between executive remuneration and permanent tax difference, which also differs in both indices FTSE 100 and FTSE 250. Whilst the relationship is significantly negative in FTSE 100, it is significant and positive in FTSE 250; in cont, there is no impact on FTSE 350.

The results of this research show that it is important to examine the indices separately to understand the behaviour of the trends as every index has different characteristics and perceptions and as a consequence, different outcomes.

CHAPTER EIGHT: RESEARCH CONCLUSION, CONTRIBUTIONS AND LIMITATIONS

8.1 Introduction

The corporate tax rate in the UK has been reduced since 2009 from 30% to 20%; although, this massive reduction companies continue in engaging in tax minimisation or/and creating new techniques for tax reduction. Tax minimisation and book tax differences figure continuingly as an important topic amongst researchers in different areas, media and politicians. In addition, book tax differences represent various dimensions; they can reflect the interaction between accounting principle and tax rules in one and/or tax minimisation and earnings management in another. This research utilises UK data for the period from 2014 to 2016 to examine whether investors distinguish between different methods of tax reduction namely permanent tax differences, temporary tax differences and overseas tax rate differences in their firms' valuation. In addition, this research examines the different perceptions of investors and managers towards current and future earnings by implementing two different measurements of firm value namely; Tobin's Q and return on assets. The result of this examination is achieved through developing book tax differences calculations' models following Abdul Wahab and Holland (2015). The three main hypotheses are developed and tested to achieve the purpose of this research. This chapter represents the summary of the research results and some recommendations for potential future research. The chapter begins with a summary of the research results and conclusion. Then it states the contribution of the knowledge and limitation with some suggestions for future research.

8.2 Research Overview

The literature review in this research provides an insight into the increase of the tax breach and highlights the corporate tax gap magnitude over decades. In addition, it discusses the two different measures of accounting and taxation incomes and the consequences of these differences, which could focus on providing information to

meet the investors need not tax authority. The alignment between accounting standards and the embracing of International Financial Report Standards (IFRS) reinforce bringing tax accounting and accounting standards together. Much work needs to be done in order to make accounting standards serve both investors and tax authorities, which can be through developing regulations to provide information to the two different interests.

In addition, the literature review (Chapter 2) represents an explanation of book tax differences with its components and highlights how they can be generated and the information that can include in these components. Book tax differences reflect the difference between accounting income and taxable income, which are both generated to provide two different information for users for a different purpose, namely accounting and taxable information. Managers tend to increase accounting income by adopting earnings management strategies, meanwhile, decrease the taxable income through engaging in tax minimisation strategies, which lead to book tax differences. Whilst, the permanent part of book tax differences cannot be reversed in the future and leads to tax saving, temporary tax differences can be reversed in the future and might not be for a tax saving purpose. Distinguishing between the two different parts of tax book differences can be crucial and lead to understanding their behaviour. Tax minimisation is considered as a corporate long-term strategy, which intends to create long-term tax savings through book tax differences. A comprehensive view of book tax differences and its components is presented in the literature review chapter, which is essential for understanding tax saving strategies and their beneficial outcomes.

Chapter three highlights corporate governance external and internal mechanisms and their impact on firm value and discuss the debate in wider details. The review explores the contribution of different types of corporate governance mechanisms towards firm value and to investigate the efficiency of these mechanisms in providing a brighter future forecasting for current and future investors.

Chapter four reviews and discuss in detail the debate concerning the relationship between firm value and tax minimisation with consideration of corporate governance as a moderating role in this relationship. The analysis examines the contribution of

the various forms of tax minimisation through book tax differences regarding firm value and their usefulness for investors' valuation. To examine the contribution of book tax differences (BTDs) and its components; PDs, TDs and STRDs, the calculation of book tax difference and its components used in Abdul Wahab and Holland (2015) is adopted. This allows for examining the relationship between firm value and each individual component and investigating whether investors distinguish between them in their valuation. The results of the analysis are crucially significant to understand the value that each component can add to the firm through tax saving and explore their importance for shareholders in their valuation.

Chapter five explains the research philosophy and develops hypotheses grounded in the literature review; thus, this research is positivist in nature and adopted a quantitative approach. Chapter six represents the data collection and variables' measurements with an explanation of the development of the research models and the report and discussion of the estimation models' results are exhibited in chapter seven.

8.3 Summary of the Hypotheses, Findings and Discussion

A summary of the hypotheses developed in chapter five is reviewed in this section along with the findings that are concluded from the research methodology. Moreover, this section debates the findings as detailed in chapter seven and answer the research questions as stated in chapter one.

8.3.1 Hypotheses

The hypotheses are developed in two stages: first, the relationship between firm value and tax minimisation components and second the moderating role that corporate governance mechanisms play in this relationship. The UK literature review is sparse in this relationship and its pattern; thus, the hypotheses are developed based on a mixture of both UK and US literature and with an explanation of the difference amongst both (Abdul Wahab and Holland, 2015; Abdul Wahab and Holland, 2012; Desai and Dharmapala, 2009; Hanlon and Slemrod, 2009).

Investors value different tax minimisation methods differently (Inger, 2014). Therefore, the first hypothesis is developed to test if there is a statistically significant difference between different components of tax minimisation and their contribution to firm valuation. Furthermore, book tax differences as a measure of tax minimisation, comprises two components, temporary and permanent differences (Abdul Wahab and Holland, 2015). The temporary difference is anticipated to reverse in the future (Hanlon, 2005), thus; it does not have any impact on investors' valuation (Inger, 2014). In contrast, the permanent differences is reflecting substances that are considered in one report (accounting income or taxable income) and not considered in the other. Prior research suggests that Permanent difference is reflecting aggressive tax reduction (Inger, 2014; Wilson, 2009; Desai and Dharmapala, 2009).
Therefore, the first hypothesis is developed to examine whether there is a significant difference between temporary, permanent and statutory overseas tax rate differences contribution on firm value model.

Finally, there is a controversial debate on whether corporate governance mechanisms play a vital role in improving shareholders' valuation of the company and whether they underpin firm efficiency or not. This motivates the development of the second hypothesis that investigates whether corporate external and internal mechanisms play a vital moderating role in this relationship between tax minimisation components and firm value.

The sample used in testing the hypotheses comprises of non-financial companies listed on FTSE 350 and covers three years period from 2014 to 2016, the sample for 2013 is also collected and utilised in calculating the beginning book value of equity. The final sample uses to test the relationship between tax minimisation and firm value after excluding the outliers is 486 observations in which 486 observations when utilising Tobin's Q as a dependent variable and 500 observations when utilising ROA as a dependent variable. This panel dataset is after excluding outliers and influential observations; also, the panel dataset is split into two other samples for FTSE 100 and FTSE 250 observation to enable examining the relationship in greater depth.

8.3.2 Findings and Discussion

The descriptive statistics in chapter seven do not disclose the presence of tax minimisation activities amongst FTSE 350; however, it is represented in both FTSE 100 in which income before tax (IBT) 698.54 (£m) and tax saving (TS) negative 17.41 (£m), through permanent differences (PDs) negative 271.78 (£m), temporary tax differences (TDs) average is 6.82 (£m) and statutory overseas tax rate differences (STRDs) 21.21 (£m), and FTSE 250 sample through the average income before tax (IBT) 108.6 (£m) and tax saving (TS) 0.01 (£m), permanent differences (PDs) negative 29.61 (£m), temporary differences (TDs) 5.05(£m), statutory overseas tax rate differences (STRDs) 2.35(£m).

In addition, the existence of tax minimisation is clear across the descriptive statistics of positive book tax difference samples. The average income before tax (IBT) is 293.68 (£m) and tax saving (TS) 32.36 (£m) for FTSE 350, which both differ in FTSE 100 and FTSE 250. This articulates overall variances in the level of tax minimisation across the samples, for example, the highest tax saving component in FTSE 350 sample is temporary differences with an average of 70.74(£m), follows by permanent differences with an average of 18.67 (£m) and then statutory tax rate differences with average 1.28 (£m). Likewise, for FTSE 100 the highest tax saving is for temporary with an average of 162.97(£m), follows by permanent differences with an average of 9.35 (£m) and finally statutory tax rate differences with an average of 4.99 (£m). For FTSE 250 the highest tax saving is for the temporary differences with an average of 27.67 (£m), follows by permanent differences with average of 23.02 (£m), however, the statutory tax rate differences is negative 0.46 (£m).

The descriptive statistics also show the general variance upon the average of corporate external and internal mechanisms in terms of institutional ownership and executive remuneration. Whilst, the average of institutional ownership for FTSE 350 is 34.792 per cent, the FTSE 100 average is 27.57 per cent and FTSE 250 39.03 per cent. The average company spending for executive remuneration in FTSE 350 is 6.860 (£m), whereas, FTSE 100 11.541 (£m) and FTSE 250 4.112 (£m). In addition,

In FTSE 100, only 10 observations have managerial ownership with a percentage of more than 3%, whilst, in FTSE 250 58 observations that have a percentage of more than 3%. As the number is small, the managerial ownership variable is ignored in the regressions.

8.3.2.1 Tax Minimisation Components and Firm Value

The multivariate results state in the previous chapter for the relationship between tax minimisation components and firm value measure by both Tobin's Q and ROA are based on three different samples namely; FTSE 350, FTSE 100 and FTSE 250. The findings suggest that for firm value measures by Tobin's Q there is no relationship between tax minimisation components namely PDs, TDs and STRDs and Tobin's Q in FTSE 350. Likewise, there is no relationship between tax minimisation components PDs, TDs, STRDs and Tobin's Q in FTSE 100. This finding suggests that these components have no impact on investors' valuation of tax minimisation strategies. However, there is a significant positive relationship between both PDs and STRDs and Tobin's Q in FTSE 250. This indicates tax minimisation strategy through permanent tax difference and overseas tax rate difference positively valued by the investors, which is inconsistent with Abdul Wahab and Holland (2012), who find a negative relationship between permanent difference and firm valuation. Whilst, it concurs with Darke, et al. (2019); Desai and Dharmapala (2006) who find a strong positive relationship between tax minimisation and firm value measures by Tobin's Q, furthermore, Guenther et al. (2017) and Darke, et al. (2019) Support the hypothesis that tax minimisation is not influenced by tax risks and suggest that lower effective tax rate (ETR) is not associated with higher tax risk or higher firm's risk. In contrast, similar to the other two samples, investors in FTSE 250 companies do not value temporary tax difference compared with the other tax components; it might be because they know that temporary difference only reflects timing difference and will reverse in the future, thus, it will not be an important element in their valuation, which concurs with (Ingar 2014).

This might explain that studying all the UK quoted companies could not lead to a significant result as not all companies have positive BTDs in all years, which could lead to an insignificant relationship between tax minimisation components and firm value measures by Tobin's Q. Nevertheless, breaking down the sample into different categories might lead to significant results. Consequently, the results support the hypothesis that predicts the existence of the relationship between tax minimisation components and firm value. Moreover, the results support the hypothesis that investors value each tax minimisation components differentially, as both significant results of PDs and STRDS are positive and TDs is not significant in FTSE 250. This indicates that investors value PDs and STRDs but not PDs as explained in the previous paragraph.

In addition, the results of the relationship between tax minimisation components and firm value measures by ROA show that there is a significant positive relationship between the three tax minimisation components; PDs, TDs, STRDs and ROA in both FTSE 350 and FTSE 100. This result supports Frank et al.'s (2009) suggestion on the strong positive influence of tax minimisation components on investors' valuation. However, the positive influence on investors' valuation in FTSE 250 comes from the only two tax minimisation components PDs and STRDs. This result concurs with Delgado et al. (2018), Noor et al. (2010) and Noor, et al. (2008), who state that companies with a higher level of profitability tend to engage in tax minimisation and pay lower corporate tax income. This positive relationship between tax minimisation components and return on assets can be explained as the book tax difference is derived by the company's profitability purpose (Herron & Nahata, 2018).

8.3.2.2 Tax Minimisation Components, Firm Value and Corporate Governance

The multivariate findings on the moderating role that corporate governance mechanisms play on the relationship between tax minimisation components and firm valuation are mentioned in the previous chapter. In addition, the chapter states the findings of analysing whether this relationship is conditional over the strength on both external and internal corporate governance mechanisms or not.

The findings suggest that corporate governance mechanisms have different influences on the three different samples. For example for FTSE 350 and FTSE 100 corporate governance mechanisms are not moderating factors in the relationship between tax minimisation components and firm value measures by Tobin's Q, as after adding both external and internal mechanism namely; institutional ownership and executive remuneration did not improve the results or even change them. However, in FTSE 250 adding corporate governance variables weaken the relationship between permanent tax difference and Tobin's Q and it becomes insignificant, however, it improves the significance level of overseas tax rate difference as it becomes significant at 95% confidence. Hence, considering corporate governance mechanisms; IOWN and EREM raise the level of the probability, but lowers the coefficient parameter for STRDs in FTSE 250. These results do not support Abdul Wahab and Holland's (2012) and Henderson Global Investors' (2005) argument that corporate governance mechanisms have a significant effect on shareholders' tax minimisation valuation in both FTSE 350 and FTSE 100. In addition, it might be explained as the UK companies have a good practice of corporate governance, as listed companies have to meet the requirements standard of compliance with corporate governance practice, thus, it is not perceptive factors for shareholders (Bauer et al., 2004).

In contrast, the results of FTSE 250 support the hypothesis that confirms the importance of corporate governance practice to shareholders tax minimisation valuation, in which it weakens permanent tax difference and strengthen statutory tax rate difference. This result might support the assumption that shareholders value tax minimisation, but do not value tax risks involved (Dark, et al. (2019).

Overall, the findings succeed in supporting the hypothesis that predicts the moderating role of corporate governance mechanisms on the relationship between both permanent tax difference and overseas tax rate difference and firm value measures using Tobin's Q as the dependent variable.

Subsequently, in the analysis of the implementation of corporate governance mechanisms on the relationship between tax minimisation components and firm value measures by ROA for the three samples, the results are significantly positive for all

tax components for both models with and without corporate governance variables. This indicates the suggestion that corporate governance mechanisms do not influence the relationship between tax minimisation components and firm value measures by ROA. Furthermore, it might indicate that corporate governance mechanisms have no influence on firm performance measured by ROA.

8.3.2.3 Tax Minimisation Components, Firm Value, Corporate Governance and the Interaction variables

The results of adding the interaction variables between tax minimisation components and corporate governance proxies to the main estimation model creating the third model and then conducting the regression on the three samples indicate a significant relationship between the interaction variables and firm value measures by both Tobin's Q and ROA. The results advocate the moderating role that corporate governance play in this relationship concurs with some prior research (Desai and Dharmaphala, 2009) and suggest a positive relationship between tax minimisation and firm value for firms with high levels of institutional ownership. However, each sample and each dependent variable has a different result, for example, concerning Tobin's Q as a dependent variable, the only interactive variable that has significant results with Tobin's Q for FTSE 350 is TDOWN. It might be because investors are aware that temporary tax difference involves a lower level of tax risk and the liability underlining it will be due in the future. This result supports the effective monitoring role that institutional ownership plays within the companies (Desai and Dharmapala, 2009). In contrast, in the same sample with ROA as a dependent variable, all the interaction variables between tax minimisation components and institutional ownership; PDOWN, TDOWN, and STRDs have significant impact on ROA. This can explain that considering institutional ownership as a moderating role can lead to a positive relationship between tax minimisation components ROA, which suggests the impact of tax minimisation on the firm's after tax value is greater for companies with high level of institutional ownership.

Concerning the interaction between tax components and institutional ownership in FTSE 100, PDOWN and TDOWN have a significant positive impact on firm value measured by both Tobin's Q and ROA; however, all three PDOWN, TDOWN and STROWN are positively significant with ROA. This result suggests that tax minimisation strategy in FTSE 100 is viewed by investors as a set of value-increasing activities. The interpretation of the findings could be that tax minimisation activities can be valued positively by investors upon the status of corporate governance (Wilson, 2009; Hanlon and Slemrod, 2009; Desai and Dharmapala, 2009). Furthermore, it may be due to the FTSE 100 that firms are regarded as risk free, whereas institutional investors believe that as the pecking order rises, so does the risk. Thus, from an agency perspective, investors could value the engagement of the FTSE 100 companies in a tax minimisation strategy, as it is considered as value added to the shareholders' wealth. In respect of this, investors perceive institutional ownership as playing a vital role in monitoring the management's activities and are increasing the level of scrutiny for managerial actions, which is interpreted by Desai and Dharmapala (2009) as good governance. Moreover, the FTSE 100 are the top largest companies that have the ability to pay for highly experienced accounting companies that help them in more complicated tax saving strategies that lead to an increase in firm value.

FTSE 250 has the opposite result with the interaction between institutional ownership and tax minimisation components, in which PDOWN has a negative impact on firm value that advocates the suggestion that tax minimisation generated by permanent difference is viewed by investors as value- decreasing activities (Abdul Wahab and Holland, 2012). It could be because FTSE 250 companies reflect the UK economy and policies as most of their operations are in the UK, so they are more affected by taxation economic and policy reforms. As a consequence, the interaction between permanent differences and institutional ownership (PDOWN) is significant and negative. The agency theory explains that tax minimisation strategy can lead to tax risks and/or managerial opportunism, due to shifting firm value privately to managers (Desai and Dharmapala, 2009, Desai et al., 2007), which is especially in companies with some levels of managerial ownership (Morck et al., 1988). The view is

supported in various recent studies (Abdul Wahab and Holland, 2012; Chen et al., 2010; Desai Dharmapala, 2009), which consider tax minimisation activity not only involves high costs but also, those costs might exceed any benefits shareholders can receive. Nevertheless, this interactive variable has a positive result when considers ROA as a dependent variable, which confirms that utilising different measures for firm value might result in different findings and shareholders valuation might be different to managers valuation of firm value.

The interaction between tax minimisation components and executive remuneration has the only significant result with permanent tax difference, in which PDEREM in FTSE 350 has a negative result when the independent variable is ROA; however, the result is insignificant when Tobin's Q is the dependent variable. In general, this can be explained as increasing executive remuneration linked to increasing of permanent tax differences, which leads to an increase in firm performance.

PDEREM has a negative impact on firm value measures by both Tobin's Q and ROA in FTSE 100. Remuneration is designed to align both shareholders' and managers' interests (Florackis, 2008), though, the efficiency of remuneration in decreasing agency costs could be confronted. From the shareholders point of view, shareholders do not value companies' engagement in a tax strategy, despite the after-tax return preference, as they perceive this return as a greater opportunity for managerial opportunism, which will not increase shareholders value. For example, in an overview of the agency problem between shareholders and the board, it can be suggested that the effective occupation of the board by a CEO leads to facilitating the diversion of rent in the form of a greater remuneration (Bebchuk and Fried, 2003). This view leads to an increasing concern about the potential negative aspects of adopting high-powered incentives to encourage the improvement of a firm's performance (Desai and Dharmapala, 2005).

FTSE 250 has different results to its counterpart FTSE 100 in which the interaction between permanent difference and executive remuneration (PDEREM) has a

significant positive impact on firm value measures only by ROA. This could be as explained above investors' valuation of firm value varies from managers' valuation.

To conclude, this research finds strong evidence that corporate governance plays a moderating role in shareholders' valuation of firms' tax minimisation activities in FTSE 100. This is through the interaction between the external corporate governance mechanisms, namely institutional ownership and both permanent differences and temporary differences, however, the moderating role of internal mechanism can only be seen on the permanent differences.

In contrast, in FTSE 250 there is evidence that only the external corporate governance mechanism has a moderating influence on shareholders' valuation through permanent difference component. As a result, it can be summarised that corporate governance practices moderate the relationship between tax minimisation components and firm value in FTSE 100. Furthermore, investors positively value tax minimisation activities when considering institutional ownership as a moderating factor but negatively value these activities through executive remuneration. Contrarily, investors negatively value tax minimisation activities in FTSE 250 when considering institutional ownership as a moderating factor, but remuneration does not have a moderating role in the relationship under investigation.

8.4 Research Contributions

Tax minimisation strategies decisions made through the different components lead to increase firm value and as consequences, shareholders' wealth mainly in FTSE 100, however, these strategies are value decreasing in FTSE 250. This section highlights the methodological and theoretical contributions and the suggestions to practice and policymakers.

8.4.1 Contributions to Knowledge

This study is the first that focuses on different methods of tax minimisation on FTSE 350 companies adding to the scarce literature on taxation, corporate governance

FTSE 350 companies' performance. The agency theory and Scholes-Wolfson assumption are the main theory and framework underpins hypotheses development and testing them. The theoretical contribution of this research is providing further understanding of taxation and corporate governance literature from shareholders' perspective towards evaluating tax minimisation strategy in the UK FTSE 350.

This research incorporates agency problem upon the analysis of tax minimisation activities leads to the theoretical and empirical contribution that predict tax minimisation activities by managers differ upon their attitude towards risk. In addition, the results of this research state that shareholders' valuation of tax minimisation differs upon different methods of tax reduction and different corporate governance mechanisms. This provides further empirical evidence on the significance of aligning shareholders with managers' interests to ensure companies' prosperity and growth in particular in FTSE 350.

Furthermore, the results show that investors value tax minimisation strategy conduct by firms, however, they do not value tax risk involves in this strategy, which could lead to an increase of the cost-related. Thus, this could raise the investors' uncertainty on the beneficial outcomes of engaging in such a strategy that can lead to imposing unintended and unwanted outcomes, whether through managers' opportunisms or reputation outcomes. This can be seen through the negative impact of executive remuneration on the firm valuation of tax minimisation strategy via investors.

The empirical contribution that this research provides to the knowledge of taxation and corporate governance is driven from prior studies in the UK (Abdul Wahab and Holland, 2012) and the US (Desai and Dharmapala, 2009; Hanlon and Slemrod, 2009, Wilson). Although the tax regulation and corporate governance practice differ between the UK and US could lead potentially to different consequences (Abdul Wahab and Holland, 2012), this research provides empirical evidence that investors' behaviour and reaction towards the tax benefit and cost defer based on their perception towards these two factors, not only tax regulation. Therefore, this research widens the understanding of investors' valuation behaviour towards tax minimisation strategy while considering corporate governance practice in the UK context. As a

result, investors' firm valuation seizes through tax minimisation strategy implemented by companies and varies upon both FTSE100 and FTSE 250 indices and base on different tax minimisation components.

Scholes-Wolfson assumption states that there are three significant standards when making tax minimisation decisions by managers. The decision should consider all of the contract parties, costs and taxes to achieve tax minimisation objectives effectively, which leads to increase firm value and as a consequence boosts shareholders' wealth. The findings of this research provide evidence that shareholders have different behaviour towards tax minimisation decisions made by managers in different indices. This result indicates that shareholders have different awareness levels concerning the risks of involving in tax minimisation activities in the UK context, which leads to having different costs for different tax minimisation components in each index. Therefore, the benefit expectation for shareholders varies across each different tax minimisation component and each index. This finding and analysis provide additional empirical evidence and further insights into the framework.

To summarise the above-mentioned discussions, this research contributes to the agency theory by expanding the tax minimisation knowledge and providing insight on tax minimisation activities conduct by managers, corporate governance practice and prove its moderating factor in mitigating the aggressiveness of these activities. Besides, Scholes-Wolfson assumption that concerning all parties, costs and taxes, which are related to tax minimisation decisions since those decisions impact market capitalisation, which leads to affect shareholders value. Finally, this research considers value relevance literature that associates with tax minimisation activities and provides evidence that shareholders value different tax minimisation method differently in the different indices.

8.4.2 Contributions to Methodology

This research contributes to the methodology in various manners. For example, the research sample collection includes non-financial companies in the FTSE 350 index and further the analysis to examine both FTSE 100 and FTSE 250 samples separately.

Thus, this research considers the first research conducts in the UK context that studies tax minimisation activities and their impact on firm value by focusing on FTSE 350 sample and splitting it to FTSE 100 and FTSE 250 to analyse them separately. This research contributes to the taxation knowledge by extending the literature and providing empirical evidence on the relationship between different methods of tax minimisation and firm value measures by two measurements Tobin's Q and ROA in the UK. This contribution considers significant to the knowledge by providing evidence that tax minimisation strategy exists even with the reduction of corporate tax rate and investors' valuation of this strategy is determined by their perception of corporate governance implementation by firms. Thus, investors' valuations are determined by their attitude towards trading off between benefit and risk and not tax-related regulation as stated by Abdul Wahab and Holland (2012).

In addition, this research provides a methodological contribution in terms of utilising a unique set of data samples. This is through collecting the data from the tax reconciliation section in companies' annual reports and calculating tax minimisation components manually using an Excel file. This calculation allows for the measuring of different components of tax minimisation, namely permanent tax difference, timing difference and statutory overseas tax rate difference. Tax minimisation components combine with the collection and calculation of both external and internal corporate governance data and five control variables. This method of calculation provides insights into the shareholders' valuation of different tax minimisation components and is considering the different corporate governance mechanisms on different samples. This is the first research that has been conducted in the UK context that applies this methodology and compares their results. Although, it has been shown that prior studies that were conducted in the UK (Abdul Wahab and Holland, 2014; Abdul Wahab and Holland, 2012) and the US utilise the different components of tax minimisation (Zhou, 2016; Inger, 2014; Hanlon and Heitzman, 2010). This study has its uniqueness by utilising different corporate governance mechanisms, focusing on the FTSE 350 and extending the analysis to the FTSE 250 and FTSE 250, and is also utilising two different measures of firm value and then compares their results. This comparison in terms of samples and firm value measures provides a methodological

contribution by closing the research gap in reviewing the difference between the UK and US shareholders valuation.

Furthermore, this research provides a methodological contribution through the choice of external and internal corporate governance mechanisms. To the author's knowledge, this is the first research in the taxation context that utilises a combination of the two different mechanisms of corporate governance, namely institutional ownership and executive remuneration. Though, prior research determines corporate governance mechanisms by various means; for example, in the UK by utilising both institution ownership and the percentage of non-executive directors in the board (Abdul Wahab and Holland, (2012) and in the US through institutional ownership (Desai and Dharmapala, 2009) and compensation (Desai and Dharmapala, 2006). This research combines the different collections of corporate governance proxies of prior research in both the UK and the US by providing its uniqueness in this selection.

8.4.3 Contributions to Practice

Further to the contribution to literature and methodology, also, this research has a practical contribution that can serve professional policymakers alike, which highlights briefly in this section the potential practical implications and the possible value-added related.

The research utilises book tax differences as a measure of tax minimisation and identifies the different resources of book tax differences as permanent and temporary differences to examine the impact of these different resources on firm value. This identification allows providing useful information to investors, managers and tax authorities, in which permanent differences can reflect the long-term tax minimisation strategy and consequently long-term earnings for the firms, however, underlying high-risk costs. In contrast, temporary differences reflect short-term earnings that underlying low-risk cost. Understanding these different resources of book tax differences can help in providing valuable information about future earnings stability for firms, which is significant for supporting investors, decisions makers and policymakers in making rational decisions. The result of this research indicates that

there is some level of tax minimisation across the FTSE 350 companies; shareholders view these activities differently depending on the index and corporate governance mechanisms angles. This conclusion also provides evidence to the policymaker to improve the quality of tax information reporting and call for aligning tax and accounting information reports for tax purpose. In addition, although tax minimisation could lead to after tax returns and increasing shareholders wealth, the ethicality of this practice is an important concern to many other stakeholders. Tax minimisation activities can show a socially irresponsible practice that contradicts with companies' obligations to society. Therefore, it is not only the government's responsibility to ensure fairness in the corporation tax, there is also the companies' responsibility towards society through the decisions made by the board, as endorsed by the OECD Guidelines for multinational companies, which set tax within corporate governance. Hence, this is another call for increasing transparency about the tax related information of multinational companies through exchanging reporting information between countries and emphasising the HMRC requirements for the publication of companies' tax strategies. Moreover, to improve the solutions for tax minimisation issues at an international level and to ensure that it is including all countries, another principle should be added to the United Nations Global Compact concerning fair taxation, which related to the involvement of the non-resort to tax minimisation schemes as suggested by Scheffer (2013).

Corporate governance compliance is a concern since the issue of the corporate governance code in 1992 that set out to reduce corporate governance risks and failures, and to enhance how the companies and board functions. According to PIRC 2007 review of the combined code, there were only 62 % of FTSE 350 listed companies in full compliance with the code provisions in 2016 as mentioned in Grant Thornton review (2018) and then the percentage further increased to 72 percent in 2018. However, those companies do not explain clearly how they implement the code principles and do not discuss their application explicitly. While 78 % of companies keen on outline details into a succession plan for compliance, only 6 %, provide conducive details about the process towards such succession (Lowe, 2018). This leads to thinking about the extent of compliance of FTSE 350 companies with tax

information disclosure and the importance of combining both compliance corporate governance code and tax information disclosure. Thus, this is a platform to call for financial reporting authorities to consider requiring more beneficial details from managers about the succession plan that companies take, to be more transparent for different information users. The negative perspectives of investors on executive remuneration might be because of the investors' fear of managerial diversion that can lead to information asymmetry issues related to tax minimisation activities. Thus, the managers should consider the negative effect of investors' firm valuation, when making tax minimisation decisions.

8.4.4 Researcher's Reflection

This research journey inevitably has a huge contribution to the researcher's personal development. The Ph.D. journey involved various challenges for the researcher, however, involved a plethora of rewarding at different levels and dimensions. Some of the reflections are stated as follows:

Stress management is a result of uncertainty. The stress can be caused by one or some known components and a build-up of small pressures, where there is too much work with thinking too far ahead. Scientifically some stress is valued in order to be on the operating track, overstress could cause severe illness. The stress that any Ph.D. research could experience caused by uncertainty whether from the journey itself or the results of the research. The researcher has been through stress at different stages of the journey to the point fearing the result might not be significant and thus, the efforts and the hard work might be lost. The researcher had to bravely face all these limiting beliefs in order to stand-alone towards completion. This period of transformation was super beneficial for personal development and understanding the hidden enemy that lives inside oneself. Although there are some support and guidance from the supervisory team, the journey is characteristically described as isolated work, where the researcher has to make his own decisions, directions and justification, which could be quite challenging and triggers the self-belief system. Just having a snapshot back put me in deep emotions similar to the emotion of relief after a massive storm that hit you. The benefit of this challenge is vital as it helps in

improving the self-belief and taking control of one's destiny, which can be through improving the confidence of continuing no matter what the uncertainty that involves the journey, the reward is invaluably precious. Thus, do it and face the fear anyway.

Balancing between the deep details and the bigger picture. The researcher tends to feel lost while looking for deep details about the research through snowballing in the literature and conceptual framework that might be unlimited. Although, it is significant to dig deeper into the details, keeping the control of the overall picture is important to create a momentum of focus and prioritise daily productivity. This technique helps in dealing with issues that we face in our daily life, improve our perspective towards daily routine issues, and enhance our focus while surrounded by a world full of distractions.

Identify the problem. The research expedition helps in setting the foundation framework of how to critically identify any dilemma, discover methods to collect information and data, analyse them and allow for the initial answers reach to assumption and conclusion. This improves problem-solving skills in our real-life scenarios that we face and have to solve on a daily basis, where we patiently deal with the challenge with deeper participation and comprehension.

Adopting different approaches. Research philosophy helps in improving our perceptions of the truth and the nature of it, which improves one's ability in detaching him/herself from human values in dealing with the situation to provide neutral information and analysis. This ability of detachment is an incredibly powerful tool that improves our professional skills. This can be through understanding the specific approach fits within the research method, the researcher utilises a descriptive approach, which helps in describing reality as it is. This is without overlooking the prescriptive approach as both can help in improving the ability to apply different approaches for different scenarios in real life.

Succession plan and resilience. It is significant to create plans and sustain the vision and path of the research in order to keep momentum flow that can though plan the aim, objectives, theoretical framework, research method and approach and also, analysis plan which helps in leading the research. However, it is significant to be

flexible as flexibility helps in adopting any outcomes. This improves our ability in dealing with uncertainties in real life.

Duplicate the process. The data analysis of this research is based on quantitative research which adopts positivism point of view that relies on an objective approach. This approach is quite challenging as requires detachment from the data analysis as I mentioned above and require improving statistical skills to achieve the outcomes. Improving the statistical skills involves the tendency of repeating the analysis a hundred times before approving them. This helps in developing the research model and improving the analysis structure and presentation to ensure they highlight the research uniqueness.

8.5 Research Limitations and Recommendations for Further Research

The uniqueness of this research underlies in the combination of different subjects namely, tax minimisation, firm value utilising different measures, corporate governance external and internal mechanisms and FTSE 350 and it's both components. To the researcher's knowledge, this research is the first that discuss tax minimisation, firm value and corporate governance mainly in FTSE 350 and analyse the results of different indices. Although each of these subjects is a subject by itself, there is a scarcity of research combining them in different sectors and areas especially in the UK and at different time scales. An attempt is made by the researcher to grasp as many subjects in the analysis as possible, however, it remains limited, as a consequence, further research could investigate specific topics deeper and for different time scale, for example;

1. Examining the tax minimisation behaviour during Brexit and the transition period after, also, the period of coronavirus and examine its impact on tax minimisation. As these events might lead to aggressiveness on tax minimisation to prevent losses and might have both a positive or negative impact on firm value.

2. The generalisation of FTSE 350 results on all the UK large companies could be constrained, however, the results of this research provide some lessons to learn and compare with other similar contexts whether in the UK or in other countries that share similar economics and corporate governances regulations such as European countries. Moreover, it would be beneficial to consider different sectors such as banking and financial companies and compare the results with this research results to identify the similarities and variances.

3. Although this research attempts to take a holistic approach in identifying the relationship between tax minimisation components and firm value with considering corporate governance as a moderating factor in FTSE 350 non-financial companies, the sample might not be completely representative.

Hence, further research may extend the scope of the examination to include different sectors and indices.

4. The theory and framework that underpins this research are agency theory and Scholes-Wolfson framework where the relationship is examined and analysed and the results are interpreted, which could be a limitation of the research. Further research may be required to adopt another theory or a combination of different theories and frameworks.

5. There are some issues that could be limiting factors in this research such the research relies upon secondary data in collecting the data of control variable that may disguise material matters of concern. However, verification upon sample crosschecks to data was made between data from the secondary and original sources to ensure their validity, such as companies' annual reports.

6. This research is a positivist in nature and adopted a quantitative approach, further research is required to focus on this subject from different approaches such as qualitative approach or mixed approach to understand in-depth human behaviour towards tax minimisation and grasp the characteristics of managers that might be more driven to engage in tax minimisation. Besides, a combination of quantitative and qualitative approaches could be more beneficial as can lead to understanding the relationship from different angles.

7. This research adopts two external and internal corporate governance mechanisms, namely institutional ownership and executive remuneration as proxies of corporate governance, which may not be the ideal mechanisms, and future research could adopt different codes and measures of corporate governance.

8. This study did not conduct any test for diagnosing the potential of an endogeneity issue on the second and third models. Thus, this is considered as one of the study's limitations, and a recommendation for future research is to deal with the endogeneity issue by adopting one of the advanced approaches, such as instrumental variables (IV), two-stage least squares (2SLS),

differenced generalised method of moments (GMM), and system generalised method of moments.

8.6 Conclusion

The consideration of relevant variables and the utilisation of a sample of FTSE 350 companies have provided the opportunity to utilise the data collected and analysed to explain the relationship between different components of tax minimisation and firm value. A large positive value of book tax differences affects future earnings and represents non-subjectivity in calculating financial statements. This research provides guidance information that consists of investors' perceptions of the manager's engagement in tax minimisation activities.

This research examines the relationship between different components of tax minimisation measured by book tax differences, namely permanent differences, temporary differences and overseas statutory tax rate differences on the FTSE 350. Although the results show that there is no significant relationship between tax minimisation components and firm value measured by Tobin's Q, the relationship is significantly positive between these components and ROA. In addition, after splitting the FTSE 350 sample to the FTSE 100 and FTSE 250 samples, only permanent differences and overseas statutory tax rate differences show a positive and significant relationship with Tobin's Q. The explanation of that could be because the FTSE 250 comprises medium size companies, thus any reduction in tax liabilities can lead to increasing firm value and achieving the growth plan, which is positively valued by investors. In addition, the relationship between tax minimisation components and ROA continued in the same direction, which can indicate that investors' valuation could have different dimensions when compared to managers' valuation and decision.

Furthermore, adding both the external and internal corporate governance mechanisms to the previous main relationship model did not change the results of the FTSE 350 and FTSE 100; however, it weakened the significance of the permanent difference in the FTSE 250. This can illustrate that while considering both mechanisms, they can have no moderate impact on the relationship under examination in both the FTSE 350 and FTSE 100 but they have an impact on the relationship in the FTSE 250, which showed in reducing the significance of the permanent difference component.

In order to understand the impact of each of the corporate governance mechanisms individually and to identify their moderating role on the relationship under investigation, a third model is created by adding the interaction variables to the second model. The results are different for each sample, which confirm the importance of splitting the FTSE 350 sample to both the FTSE 100 and FTSE 250, as the two indices have different features and characteristics that might generate different outcomes and investors may value both indices differently. For example, the influence of institutional ownership interaction with tax minimisation components varies upon the different indexes and differs from the influence of the executive remuneration. This can indicate that external corporate governance mechanisms have an influential role that are various when compared to internal mechanisms; hence, a solid combination of both of them could lead to intended outcomes and align between principle and agent interests.

The research provides evidence that contributes to the knowledge of the investors' valuation of different components of tax minimisation activities in the UK. Besides, this research provides a methodological contribution to the knowledge in terms of measuring tax minimisation components and combining them with both measures of firm value along with corporate governance mechanisms.

Moreover, the research provides a theoretical contribution to the current theory that institutional ownership in the FTSE 100 has a positive influence on the relationship under examination, in which investors positively value tax minimisation activities through the permanent and temporary differences components. In contrast, they negatively value tax minimisation activities through the permanent in the FTSE 250. This could be as a result of the FTSE 100 firms that are regarded as risk free companies, and because investors perceive institutional ownership as playing a vital role in monitoring the management's activities and increasing the level of scrutiny for managerial actions, which is interpreted by Desai and Dharmapala (2009) as good governance. In contrast, The agency theory explains that a tax minimisation strategy can lead to tax risks and/or managerial opportunism, due to shifting the firm's resources privately to managers (Desai and Dharmapala, 2009; Desai et al., 2007),

which is found especially in companies with some levels of managerial ownership (Morck et al., 1988), such as is the case in the FTSE 250. The view is supported in various recent studies (Abdul Wahab and Holland, 2012; Chen et al., 2010; Desai Dharmapala, 2009).

Executive remuneration has a negative impact on the relationship between tax minimisation components and firm value in the FTSE 100 and it is absent in the FTSE 250. These provide evidence of the significant control effect of corporate governance on the shareholders' tax minimisation valuation for different components. This can indicate that investors do not favour tax minimisation strategies that are based on permanent differences despite the after tax savings preference, as a result of managerial value diversion or fear of managerial opportunisms, which will lead to an increase in managers value rather than shareholders value. This result is consistent with prior research that concerns the relationship between tax minimisation and firm value while considering managerial incentives (Nissim, 2004; Hanlon, 2005; Desai and Dharmapala, 2005).

The results shed light on the practical and policy implication by highlighting the importance of providing more details into a succession plan concerning compliance and disclosures of taxation expenses, tax reconciliation and corporate governance in the annual reports.

The limitations also are provided in this chapter in terms of the sample of this research and the extent of its validity amongst the sample check solution. Besides, some further research is recommended. The recommendations include applying the research on different sectors and time scale, also, considering other types of research approaches such as qualitative and mixed approaches and compare the results. In addition, adopting different theories in examining the data and interpreting the results it would add more contribution to the existence literature.

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Appendix A: Tax Rate Reconciliation

Figure A-1 Taxation – Income Statement OCADO Group

	2015 £m	2016 £m
Recognised in the Income statement Current tax:		
UK corporation tax on profits of the period	0.1	-
Oversees corporate tax on profits of the period	(0.1)	0.1
Adjustments in respect of prior periods	0.1	-
Total Current Tax	0.1	0.1
Deferred Tax		
Origination and reversal of temporary differences	-	-
		-
Total Deferred Tax	-	
Income Tax Expenses	0.1	0.1

Figure A-2 Tax Rate Reconciliation

	2015 £m	2016 £m
Profit before tax	11.9	12.1
Effective tax charge at the UK tax rate of 20% (2015: 20.3%) Effect of:	2.4	2.4
Utilisation of brought forward losses	-	(0.6)
Permanent differences	1.8	1.7
Difference in overseas tax rates	0.6	-
Temporary differences on which no deferred tax recognised	(4.8)	(3.4)
Prior year adjustments	0.1	-
Income Tax charge for the Period	0.1	0.1

Appendix B: Further Tests

Table B-1: Descriptive Statistics: Positive BTDs FTSE 350 Companies

Variables	Mean	Min	Max	Standard Deviation
$MVE_{T+3months}$(£m)	5427.89	293.02	62162.1	9593.69
TI (£m)	204.28	-72.17	2500	360.23
IBT (£m)	293.68	1.53	2933	454.72
TS(£m)	32.36	-86.13	715.72	80.29
BTDs(m)	89.40	0.13	2067.15	211.23
PDs(£m)	18.67	-889.3	2003.163	210.23
TDs(£m)	70.74	-491.75	1652.17	202.57
STRDs(£m)	1.28	-35	93	12.07
ETR	0.09	-0.57	0.49	0.16
STR	0.21	0.2	0.23	0.01
Tobin's Q 174	0.53	0.03	0.99	0.20
ROA 179	11.59	0.18	43.13	7.50
IOWN 179	34.53	0	80.46	18.19
REM(m)	5.733	0.536	29.633	4.820
REM/BE_{t-1}	0.30	-0.70	12.01	1.15
EM	0.03	-2.91	4.73	0.69
CI	0.25	0	1.14	0.28
LEV	0.23	0	1.97	0.26
FOS	43.97	0	100	39.80
DI	1.69	0	79.35	6.10

MVET+3 months: Equity market value after three months of the annual report publication, TI: Taxable income, IBT: Income before tax, TS: Tax saving BTDs: Book tax differences, PDs: Permanent differences, TDs: Temporary differences, STRDs: Statutory tax rate differences, ETR: Effective tax rate, STR: Statutory tax rate, ROA: Return on assets, MOWN: Managerial ownership, IOWN: Institutional ownership, EREM: Executive remuneration, REM/BE_{t-1}: Executive remuneration to equity book value in the prior year, EM: Earnings management, CI: Capital intensity, LEV: Leverage, FOS: Foreign sales, DIV: Dividends.

Table 0-2: Descriptive Statistics - Positive BTDs FTSE 100 Companies

Variables	Mean	Min	Max	Standard Deviation
$MVE_{T+3months}$(£m)	12978.36	1076.55	62162.1	13976.05
TI (£m)	482.39	0.46	2500	530.18
IBT (£m)	654.71	1.53	2933	667.82
TS(£m)	71.21	-86.13	715.72	132.74
BTDs(£m)	172.32	0.13	2067.15	353.90
PDs(£m)	9.35	-889.30	2003.163	360.91
TDs(£m)	162.97	-491.75	1652.17	332.94
STRDs(£m)	4.99	-35	93	20.19
ETR	0.11	-0.28	0.49	0.15
STR	0.21	0.2	0.232	0.01
Tobin's Q 57	0.58	0.06	0.97	0.19
ROA 57	11.82	3.18	36.38	6.80
MOWN 5	34.03	33.73	34.62	0.51
IOWN 186	25.05	0	80.46	14.28
REM(£m)	9.917	0.617	29.633	5.741
REM/BE_{t-1}	0.75	-0.02	12.01	1.89
EM	0.20	-1.37	4.73	0.85
CI	0.30	0	0.96	0.34
LEV	0.24	0	0.56	0.17
FOS	55.39	0	100	37.60
DI	0.84	0	6.31	1.13

MVET+3 months: Equity market value after three months of the annual report publication, TI: Taxable income, IBT: Income before tax, TS: Tax saving BTDs: Book tax differences, PDs: Permanent differences, TDs: Temporary differences, STRDs: Statutory tax rate differences, ETR: Effective tax rate, STR: Statutory tax rate, ROA: Return on assets, MOWN: Managerial ownership, IOWN: Institutional ownership, EREM: Executive remuneration, REM/BE_{t-1}: Executive remuneration to equity book value in the prior year, EM: Earnings management, CI: Capital intensity, LEV: Leverage, FOS: Foreign sales, DIV: Dividends.

Table 0-3: Descriptive Statistics - Positive BTDs FTSE 250 Companies

Variables	Mean	Min	Max	Standard Deviation
$MVE_{T+3months}$(£m)	1751.14	293.02	8769.89	1170.89
TI (£m)	74.35	-72.17	478.85	85.72
IBT (£m)	125.01	7.32	497.87	87.63
TS	14.20	-19.21	65.15	16.90
BTDs(£m)	50.66	0.28	275.04	54.03
PDs(£m)	23.02	-231.3	275.04	68.35
TDs(£m)	27.64	-142.86	254.82	56.42
STRDs(£m)	-0.46	-17.4	18	4.01
ETR	0.08	-0.57	0.47	0.16
STR	0.21	0.20	0.23	0.01
Tobin's Q 117	0.50	0.03	0.99	0.20
ROA 122	11.49	0.18	43.13	7.84
MOWN 22	21.39	2.6	53.05	16.10
IOWN 122	38.96	0	78.53	18.17
REM(£m)	3.779	0.536	15.720	2.613
REM/BE_{t-1}	0.09	-0.69	2.52	0.36
EM	-0.05	-2.91	3.23	0.58
CI	0.23	0	1.14	0.25
LEV	0.23	0	1.97	0.29
FOS	38.63	0	100	39.82
DI	2.1	0	79.35	7.29

MVET+3 months: Equity market value after three months of the annual report publication, TI: Taxable income, IBT: Income before tax, TS: Tax saving BTDs: Book tax differences, PDs: Permanent differences, TDs: Temporary differences, STRDs: Statutory tax rate differences, ETR: Effective tax rate, STR: Statutory tax rate, ROA: Return on assets, MOWN: Managerial ownership, IOWN: Institutional ownership, EREM: Executive remuneration, REM/BE_{t-1}: Executive remuneration to equity book value in the prior year, EM: Earnings management, CI: Capital intensity, LEV: Leverage, FOS: Foreign sales, DIV: Dividends.

Table 0-4: Pearson Correlation Matrix: FTSE 350 (***p>0.001, **P<0.05, *p<0.100,)

N= 483	Q	BTDs	PDs	TDs	STRDs	IOWN	REM	EM	CI	LEV	FOS	DIV	TI	IBT	ETR	STR	TS	ROA	PDOWN	TDOWN	STRDOWN	PDREM	TDREM	STRDREM
Q	1.00																							
BTDs	-0.1137 ***	1.000																						
PDs	-0.0934 **	0.9423***	1.000																					
TDs	-0.1102 ***	0.701***	0.4217 ***	1.000																				
STRDs	0.1625 ***	-0.8865 ***	-0.8425 ***	-0.6061 ***	1.000																			
IOWN	-0.1590 ***	0.1481 ***	0.1763***	0.0256	-0.1345***	1.000																		
REM	-0.0339	0.0475	0.0785 *	-0.0385	-0.0216	0.0220	1.000																	
EM	0.1873 ***	0.0671 *	0.0531*	0.0688*	-0.0585 *	0.0466	0.0298	1.000																
CI	-0.0221	0.0121	-0.0209	0.0774*	0.0059	-0.0054	0.0049	-0.0290	1.000															
LEV	0.5149 ***	-0.0508**	-0.0636 ***	-0.0022	0.0453 **	-0.0044 **	-0.0474	0.0744 ***	-0.0376 *	1.000														
FOS	0.0353	-0.1501 ***	-0.1498 ***	-0.0893 **	0.1557 ***	-0.0980 *	0.0365	0.0668*	0.0514	0.0385 *	1.000													
DIV	0.0095	0.0341	0.0432	0.0002	-0.0378	0.0407	-0.0325	0.0086	0.0425	0.0051	-0.0843 *	1.000												
TI	0.0493	-0.8834 ***	-0.8950 ***	-0.4860 ***	0.7914 ***	-0.2036 ***	0.0126	-0.0627	-0.0206	0.0389 ***	0.1551 ***	-0.0618	1.000											

IBT	-0.0143	-0.6253 ***	-0.6935 ***	-0.2162 ***	0.5681 ***	-0.2143 ***	0.0612 *	-0.0477	-0.0238	0.0215 *	0.1316	-0.0741 *	0.9181 *	1.000									
ETR	0.0237	-0.2185	-0.1537	-0.2642 ***	0.1029	0.0428 *	-0.0252	-0.0300	-0.1302	0.1059	0.0812 *	-0.1004 *	0.1137 ***	0.0043	1.000								
STR	0.0099	0.0696 *	0.0572 *	0.0665*	-0.0334	-0.0545	.0041	0.0154	0.0356	-0.0490	-0.0963 **	-0.0266	-0.0432	-0.0118	-0.0156	1.000							
TS	-0.0499	0.7298***	0.6288 ***	0.6398 ***	-0.5924 ***	0.0714 *	0.0167	0.0880 *	0.0270	-0.0310	-0.0963 **	0.0160	-0.7042 ***	-0.5553 ***	-0.2808	0.0745 *	1.000						
ROA	0.1647 ***	0.0212	0.0151	0.0253	-0.0046	-0.0386	0.0609 *	-0.0131	-0.0295	-0.0550 ***	-0.1273 ***	0.0069	-0.0072	0.0060	-0.0195	-0.0061	0.0164	1.000					
PDOWN	-0.0759	0.7610	0.8617	0.2256	-0.6703	0.0715	0.1353	0.0360	-0.0718	-0.0525	-0.1827	0.0454	-0.7214	-0.5574	-0.1858	0.1069	0.5028	0.0361	1.000				
TDOWN	-0.0627	0.4226	0.1532	0.8180	-0.2856	-0.0009	-0.0755	0.0557	0.1028	0.0019	-0.0777	-0.0181	-0.2465	-0.0528	-0.3172	0.0813	0.5644	0.0273	-0.0334	1.000			
STRDOWN	0.1909	-0.7609	-0.7415	-0.4812	0.9028	-0.1080	-0.0467	-0.0369	0.0297	0.0452	0.2378	-0.0369	0.6712	0.4741	0.0948	-0.0483	-0.4896	-0.0148	-0.7068	-0.2081	1.000		
PDREM	0.0565	0.0352	0.0775	-0.0697	0.0053	-0.0129	0.5608	-0.0087	-0.0456	0.0577	-0.0206	-0.0227	0.0615	0.1323	-0.0068	0.0265	0.0131	0.0031	0.1930	-0.1389	-0.0179	1.000	
TDREM	-0.0537	-0.0108	-0.0577	0.0938	0.0021	-0.0072	-0.5390	0.0132	0.0552	-0.0532	0.0138	0.0173	-0.0565	-0.1031	-0.0163	0.0046	0.0331	-0.0026	-0.1637	0.1571	0.0253	-0.9042	1.000
STRDREM	-0.0210	0.0243	0.0375	-0.0140	0.0635	-0.0742	0.0797	0.0084	-0.0035	-0.0148	0.0695	-0.0107	0.0821	0.1573	-0.0148	0.0132	0.0592	-0.0004	0.0071	0.0205	0.0803	-0.0737	0.2455	1.000

Table 0-5: Pearson Correlation Matrix: FTSE100 (***p>0.001, **P<0.05, *p<0.10)

N= 483	Q	BTDs	PDs	TDs	STRDs	IOWN	REM	EM	CI	LEV	FOS	DIV	TI	IBT	ETR	STR	TS	ROA	PDOWN	TDOWN	STRDOWN	PDREM	TDREM	STRDREM
Q	1.000																							
BTDs	-0.1123 ***	1.000																						
PDs	-0.0598 *	0.9431 **	1.000																					
TDs	-0.1771 ***	0.7264 ***	0.4565 ***	1.000																				
STRDs	0.2045 ***	-0.8891 ***	-0.8476 ***	-0.6271***	1.000																			
IOWN	-0.2230 ***	0.1643 ***	0.1825 ***	0.0623 *	-0.1583 ***	1.000																		
REM	-0.0010	0.0831 *	0.1356 ***	-0.580***	-0.0497	-0.0117	1.000																	
EM	0.2197 ***	0.1155 ***	0.1028 **	0.0965 **	-0.0976 **	0.1613 ***	0.0113 **	1.000																
CI	-0.1001 **	0.0225	-0.0215	0.1046 **	-0.0125	0.0412	0.0541 *	0.0300	1.000															
LEV	0.4839 ***	-0.1272 ***	-0.1550 ***	-0.0201	0.1175***	-0.1430 ***	0.0244	0.2298 ***	0.1687 ***	1.000														
FOS	0.0986 **	-0.1708 ***	-0.1467 ***	-0.1538 ***	0.1732 ***	-0.0879 *	-0.0412	0.1783 ***	0.0201	0.1815 ***	1.000													
DIV	0.1629 ***	0.0589 *	0.0584 *	0.0368	-0.0590 *	0.0432	-0.0286	0.2196 ***	0.0693 *	0.0073	0.0311	1.000												
TI	0.0002	-0.8867 ***	-0.8969 ***	-0.5188 ***	0.7915 ***	-0.2143 ***	-0.0135	-0.1209 ***	-0.0465	0.0911 **	0.1457 ***	-0.0882 *	1.000											
IBT	-0.0988 **	-0.6212 ***	-0.6886 ***	-0.2388 ***	0.5576***	-0.2184 ***	0.0505	-0.1031 **	-0.0589 *	0.0423	0.0964 **	-0.0975 **	0.9131 ***	1.000										

ETR	0.0230	-0.2748 ***	-0.1983 ***	-0.3256 ***	0.1501 ***	0.0466 *	-0.0360	-0.0997 **	-0.2741 ***	-0.0216 *	0.0873 *	-0.1393 ***	0.1530 ***	0.0170	1.000								
STR	0.0492	0.1122 ***	0.0989 **	0.0957 *	-0.0593 *	-0.0535 *	0.0103	-.0175	0.0269	0.0494	-0.0744 *	-0.0174	-0.0732 *	-0.0251	-0.0389	1.000							
TS	-0.0536 *	0.7349 ***	0.6426 ***	0.6381 ***	-0.5960 ***	0.0888 *	0.0280	0.1313 ***	0.0379	-0.0770 *	-0.1228 ***	0.0290	-0.7212 ***	-0.5744 ***	-0.3145 ***	0.1058 **	1.000						
ROA	0.3037	0.0323	0.0291	0.0262	-0.0170	0.0193	0.0864 *	-0.0139	-0.0431	-0.1909 ***	-0.2256 ***	0.1512 ***	-0.0310	-0.0242	-0.0276	-0.0147	0.0237	1.000					
PDOWN	0.0289	0.7852	0.8870	0.2677	-0.6927	0.0036	0.2382	0.1064	-0.0751	-0.1681	-0.1479	0.0362	-0.7371	-0.5570	-0.14994	0.1599	0.5223	0.0571	1.000				
TDOWN	-0.1160	0.4567	0.1897	0.8297	-0.3196	0.0488	-0.1227	0.0647	0.1220	-0.0175	-0.1494	0.0163	-0.2873	-0.0843	-0.3679	0.0852	0.5820	0.0233	-0.0070	1.000			
STRDOWN	0.2422	-0.7812	-0.7603	-0.5189	0.09210	-0.1472	-0.0999	-0.0780	-0.0026	0.1508	0.2299	-0.0383	0.6848	0.4718	0.1136	-0.0794	-0.5045	-0.0289	-0.7103	-0.2436	1.000		
PDREM	0.0674	0.0491	0.0972	-0.0696	-0.0066	0.0161	0.7664	-0.0156	-0.0730	0.1461	-0.0563	-0.0487	0.0403	0.1117	-0.0105	0.0433	0.0194	-0.0057	0.2334	-0.1506	-0.0308	1.000	
TDREM	-0.0706	-0.0242	-0.0752	0.0909	0.0132	-0.0431	-0.7231	0.0182	0.0818	-0.1399	0.0669	0.0394	-0.0381	-0.0858	0.0023	0.0105	0.0253	0.0043	-0.2011	0.1608	0.0403	-0.9074	1.000	
STRDREM	-0.0258	0.0321	0.0486	-0.0146	0.0585	-0.1356	-0.0279	0.0043	-0.0065	-0.0095	0.0884	-0.0195	0.0772	0.1592	-0.0267	0.0221	0.0641	-0.0026	0.0218	0.0217	0.0735	-0.0752	0.2566	1.000

Table 0-6: Pearson Correlation Matrix: FTSE 250 (***p>0.001, **P<0.05, *p<0.10)

N= 483	Q	BTDs	PDs	TDs	STRDs	IOWN	REM	EM	CI	LEV	FOS	DIV	TI	IBT	ETR	STR	TS	ROA	PDOWN	TDOWN	STRDOWN	PDREM	TDREM	STRDREM
Q	1.000																							
BTDs	-0.1801***	1.00																						
PDs	-0.1918***	0.9190***	1.000																					
TDs	0.0406	0.1441***	-0.2579***	1.00																				
STRDs	0.1332***	-0.6017***	-0.6200***	0.0817 *	1.000																			
IOWN	-0.0657 *	0.0963 *	0.1172**	-0.0582	-0.0429	1.000																		
REM	-0.0896 *	0.0201	0.0079	0.0295	0.0173	0.0976***	1.000																	
EM	0.1580***	-0.0316	-0.0471	0.0421	0.0196	-0.0104	0.0439	1.000																
CI	0.0247	0.0674*	0.0284	0.0939*	0.0649*	-0.0057	-0.0484 *	-0.0754 *	1.000															
LEV	0.5220***	-0.0150 *	-0.0273***	0.0317***	0.0014	-0.0428	-0.0893***	0.0879 *	-0.0169	1.000														
FOS	-0.0522	-0.1670***	-0.1502***	-0.0324 *	0.3399***	-0.0137	0.0663*	-0.0117	0.0519	-0.1088 *	1.000													
DIV	0.0015	0.0070	0.0267	-0.0498	-0.0635 *	0.0019	-0.0272	-0.0322	0.0521	0.0080**	-0.0823 *	1.000												

TI	0.1486***	-0.8661***	-0.8386***	-0.0176	0.5751***	-0.0847*	-0.0438	0.0843*	-0.1259***	0.0097*	0.1767***	-0.0834*	1.000										
IBT	0.0063	-0.1460***	-0.2203***	0.1950***	0.1986***	-0.0239	-0.0546*	0.1117***	-0.1408***	-0.0081*	0.0929*	-0.1540***	0.6199***	1.000									
ETR	0.0211	-0.3712***	-0.1900***	-0.4327***	0.0728*	0.0473*	-0.0167	0.0243	-0.0297	0.1572	0.0785*	-0.1071*	0.2238***	-0.1412***	1.000								
STR	-0.0173	0.0755*	0.0350	0.0971*	-0.0234	-0.0549	-0.0015	0.0143	0.0401	-0.0770	-0.1131**	-0.0292	-0.0796*	-0.0214*	-0.0022	1.000							
TS	-0.4622***	0.4789***	0.1967***	0.6798***	-0.1690***	0.0047	0.0309	0.0330	0.0696*	-0.0126	-0.0961*	0.0013	-0.3357***	0.0933**	-0.7046***	0.1357***	1.000						
ROA	-0.2046***	0.0741*	0.0689*	0.0087	0.0039	-0.1238	-0.0289	-0.0284	-0.0331	0.0337	-0.0912*	-0.0643	-0.0034	0.1095**	-0.0128	0.0053	-0.0044	1.000					
PDOWN	-0.02291	0.5954	0.6480	-0.1675	-0.5737	-0.0152	-0.0005	-0.0792	-0.0520	0.0235	-0.1814	0.0216	-0.5016	-0.0534	-0.3527	0.0947	0.4031	0.0560	1.000				
TDOWN	0.0116	0.2784	-0.0931	0.9159	0.0128	-0.0471	0.0209	0.0560	0.1028	0.0206	-0.0308	-0.0474	-0.1394	0.1664	-0.3456	0.1227	0.6218	0.0315	-0.1222	1.000			
STRDOWN	0.0867	-0.3704	-0.3646	0.0074	0.8654	0.0703	0.0447	0.0356	0.0971	-0.0368	0.3440	-0.0326	0.3315	0.0780	0.1072	-0.0309	-0.1884	-0.0086	-0.6141	-0.0131	1.000		
PDREM	0.0307	0.1019	0.1535	-0.1356	-0.115	0.0241	-0.1332	-0.0089	-0.0723	0.0448	-0.1016	-0.0243	-0.0353	0.0895	-0.0107	0.0240	0.0310	0.1114	0.2111	-0.1044	-0.1007	1.000	
TDREM	0.0174	0.0672	-0.0460	0.2800	-0.008	-0.0363	-0.0670	0.0367	0.0905	-0.0128	-0.0999	0.0012	-0.0467	0.0131	-0.2032	-0.0073	0.1894	-0.0539	-0.0663	0.2840	-0.0342	-0.5505	1.000
STRDREM	-0.0676	-0.0387	-0.0395	0.0043	0.1036	0.0690	0.8397	0.0359	-0.0095	-0.0756	0.0968	-0.0144	0.0120	-0.0365	0.0160	0.0044	-0.0202	-0.0069	-0.0595	-0.0154	0.1328	-0.2057	-0.1360	1.000

B- 7 Endogeneity Measurement

Dependent variable Tobin's Q	Model 1 FTSE 350
PDs	.0004 (0.135)
TDs	0.0023 (0.136)
STRDs	0.0126 (0.031)
Cons	0.446 (0.000)
N	321
Wald chi Prob > Chi2	5.01 0.1708

B-8 Year Dummy for the first model

	FTSE 350		FTSE 100		FTSE 250	
VARIABLES	MODEL 1 Q	Model 2 ROA	MODEL 1 Q	Model 2 ROA	MODEL 1 Q	Model 2 ROA
PDs	6.73e-06 (0.805)	0.0036 (0.005) **	-0.0000 (0.409)	0.0041 (0.000) ***	0.0000 (0.035) **	0.0083 (0.002) **
TDs	0.0000 (0.429)	0.0096 (0.000) ***	-8.80e-06 (0.516)	0.0077 (0.001) ***	0.0001 (0.242)	0.0229 (0.008) **
STRDs	-0.0000 (0.840)	0.0487 (0.000) ***	-0.0017 (0.211)	0.0495 (0.000)	0.0005 (0.189)	0.1568 (0.091) *
EM	0.0068 (0.168)	0.6089 (0.090) *	0.0039 (0.740)	0.5963 (0.513)	0.0045 (0.373)	0.2674 (0.502)
CI	0.3622 (0.101) *	11.970 (0.089) *	1.0440 (0.000) ***	42.624 (0.001) ***	0.1072 (0.073) *	0.4836 (0.881)
LEV	0.6411 (0.000) ***	1.7433 (0.816)	0.3050 (0.043)	-18.928 (0.026) **	0.7770 (0.000) ***	2.5053 (0.658)
FOS	0.0005 (0.381)	-0.0287 (0.462)	0.0009 (0.219)	0.1309 (0.372)	-0.0002 (0.644)	-0.0248 (0.271)
DIV	0.0013 (0.006) **	-0.1022 (0.154)	-0.0023 (0.293)	-0.1531 (0.225)	0.0013 (0.000) ***	-0.1008 (0.043) **
2014	-0.0152 (0.213)	0.1644 (0.874)	-0.0207 (0.143)	-0.6815 (0.447)	-0.0133 (0.449)	0.5956 (0.699)
2015	-0.0156 (0.237)	-0.3470 (0.734)	-0.0319 (0.041) **	-1.1243 (0.286)	-0.0072 (0.696)	0.2528 (0.872)
2016	-0.0108 (0.421)	-1.254 (0.211)	-0.0286 (0.094)	-1.3499 (0.224)	0.0072 (0.719)	-0.7181 (0.632)
Cons	0.3031 (0.000)	12.225 (0.009)	0.1998 (0.000)	2.2093 (0.810)	0.3569 (0.000)	12.4435 (0.000)
N	483	497	184	186	299	311
R-squared (within)	0.3522	0.2042	0.6670	0.5706	0.4210	0.1132
R-squared (between)	0.1044	0.000	0.0020	0.0094	0.2344	0.0025
R-squared (overall)	0.1151	0.0007	0.0003	0.0057	0.2483	0.0151
F Prob > F	6.78 (0.000)	-	12.46 (0.000)	28.90 (0.000)	9.94 (0.000)	
Wald chi Prob > Chi2		84.19 (0.000)	-			31.38 (0.0010)

*Coefficient value and P-value in (brackets)

***, ** and * indicate significant at 1%, 5% and 10% respectively.

PDs: Permanent Differences, TDs: Temporary Differences, STRDs: Statutory Tax rate Differences, EM: Earnings Management, CI: Capital Intensity, LEV: Leverage, FOS: Foreign Sales, DIV: Dividends

B-9 Year Dummies for the Second model

VARIABLES	MODEL 350 Q	MODEL 350 ROA	MODEL 100 Q	MODEL 100 ROA	MODEL 250 Q	MODEL 250 ROA
PDs	0.000 (0.675)	0.0035 (0.007)**	-0.000 (0.556)	0.0041 (0.000)***	0.000 (0.274)	0.0083 (0.002)**
TDs	0.000 (0.434)	0.0097 (0.000)***	-8.21e-06 (0.557)	0.0077 (0.001)***	0.000 (0.606)	0.0229 (0.009)**
STRDs	-5.08e-06 (0.977)	0.0477 (0.000)***	-0.0001 (0.322)	0.0492 (0.000)***	0.0006 (0.142)	0.1555 (0.097)*
IOWN	-0.0007 (0.224)	-0.0077 (0.783)	-0.0049 (0.312)	-0.0031 (0.926)	-0.0004 (0.403)	-0.0184 (0.525)
EREM	-0.0048 (0.009) **	0.3102 (0.277)	-0.0025 (0.194)	0.0473 (0.789)	-0.0059 (0.030)**	0.3194 (0.251)
EM	0.0071 (0.235)	0.6153 (0.080)*	0.0075 (0.535)	0.6406 (0.489)	0.0076 (0.122)	0.2555 (0.520)
CI	0.3788 (0.087) *	12.0809 (0.090)*	1.0401 (0.000)***	39.3290 (0.003)***	0.0704 (0.068)*	0.6731 (0.842)
LEV	0.6334 (0.000)***	1.7844 (0.815)	0.3128 (0.031)**	-19.2214 (0.024)**	0.7446 (0.000)***	2.5483 (0.651)
FOS	0.0004 (0.425)	-0.0275 (0.479)	0.0009 (0.227)	0.0455 (0.673)	-0.0001 (0.725)	-0.0253 (0.262)
DIV	0.0014 (0.003)**	-0.0996 (0.159)	-0.0023 (0.302)	-0.1256 (0.350)	0.0012 (0.001)***	-0.0979 (0.044)**
2014	-0.0131 (0.279)	0.2207 (0.835)	-0.0211 (0.137)	-0.7265 (0.429)	-0.0126 (0.452)	0.7018 (0.659)
2015	-0.0133 (0.295)	-0.3507 (0.734)	-0.0321 (0.039)**	-1.1393 (0.282)	-0.0058 (0.742)	0.3123 (0.847)
2016	-0.0063 (0.627)	-1.1797 (0.257)	-0.0276 (0.108)*	-1.3227 (0.244)	0.0081 (0.676)	-0.5469 (0.730)
Cons	0.3256 (0.000)	12.283 (0.010)	0.2124 (0.000)	8.4260 (0.476)	0.3805 (0.000)	12.965 (0.000)
N	483	497	184	186	299	311
R-squared (within)	0.3619	0.2058	0.6718	0.5653	0.4213	0.1128
R-squared (between)	0.1074	0.0000	0.0011	0.0015	0.2507	0.0053
R-squared (overall)	0.1181	0.0009	0.0000	0.0003	0.2640	0.0194
F Prob > F	7.44 (0.000)	—	17.60 (0.000)			
Wald chi Prob > Chi2		95.65 (0.000)		355.88 (0.000)	157.25 (0.000)	32.05 (0.0024)

*Coefficient value and P-value in (brackets)

***, ** and * indicate significant at 1%, 5% and 10% respectively.

PDs: Permanent Differences, TDs: Temporary Differences, STRDs: Statutory Tax rate Differences, IOWN: Institutional Ownership, EREMEM: Executive Remuneration, EM: Earnings Management, CI: Capital Intensity, LEV: Leverage, FOS: Foreign Sales, DIV: Dividends

B-10 Year Dummies for the Third model

VARIABLES	MODEL Q	MODEL ROA	MODEL Q	MODEL ROA	MODEL Q	Model ROA
PDs	-2.45e-06 (0.942)	-0.0015 (0.313)	-0.000 (0.030)**	0.0004 (0.801)	0.0001 (0.064)*	0.0073 (0.220)
TDs	-0.0000 (0.320)	0.0039 (0.196)	-0.0001 (0.002)**	0.0017 (0.559)	0.000 (0.890)	0.0529 (0.136)
STRDs	0.0000 (0.762)	0.0055 (0.656)	-0.0002 (0.195)	0.0193 (0.148)	0.0010 (0.320)	0.1188 (0.301)
IOWN	-0.0007 (0.208)	-0.0111 (0.668)	-0.0004 (0.392)	-0.0035 (0.911)	-0.0003 (0.513)	-0.0245 (0.359)
EREM	-0.0063 (0.051)**	0.5618 (0.006)**	0.0069 (0.430)	0.9144 (0.285)	-0.0127 (0.412)	0.1202 (0.848)
PDOWN	1.67e-06 (0.239)	0.0004 (0.000)	3.66e-06 (0.005)**	0.0034 (0.003)**	-3.65e-06 (0.092)*	0.0004 (0.077)*
TDOWN	2.10e-06 (0.022)**	0.0003 (0.003)**	2.24e-06 (0.000)***	0.0003 (0.009)**	-1.23e-07 (0.983)	-0.0007 (0.323)
STRDOWN	-7.94e-06 (0.536)	0.0035 (0.000)	2.65e-06 (0.776)	0.0026 (0.001)***	-0.000 (0.374)	0.0029 (0.312)
PDEREM	-2.93e-06 (0.745)	-0.0031 (0.001)***	-0.000 (0.141)	-0.0028 (0.081)*	0.0001 (0.547)	0.0268 (0.100)*
TDEREM	-8.36e-06 (0.606)	-0.0022 (0.242)	9.57e-06 (0.637)	-0.0010 (0.623)	0.0002 (0.288)	0.0087 (0.524)
STRDEREM	0.0001 (0.554)	0.0072 (0.606)	-0.0001 (0.679)	0.0012 (0.937)	0.0016 (0.623)	-0.0075 (0.963)
EM	0.0060 (0.340)	0.3580 (0.223)	0.0075 (0.482)	0.6704 (0.415)	0.0084 (0.123)	0.1033 (0.726)
CI	0.3793 (0.085)*	12.5814 (0.070)*	1.0387 (0.000)***	38.69 (0.002)**	0.0660 (0.093)*	0.9267 (0.786)
LEV	0.635 (0.000)***	2.0935 (0.782)	0.3081 (0.033)**	-19.789 (0.007)**	0.7386 (0.000)***	2.5870 (0.645)
FOS	0.0004 (0.432)	-0.0301 (0.432)	0.0010 (0.225)	0.0521 (0.626)	-0.0001 (0.791)	-0.0229 (0.333)
DIV	0.0014 (0.001)***	-0.0788 (0.181)	-0.0024 (0.271)	-0.0964 (0.435)	0.0010 (0.015)**	-0.077 (0.021)**
2014	-0.0125 (0.314)	0.3656 (0.720)	-0.0183 (0.198)	-0.3897 (0.533)	-0.0122 (0.462)	0.4737 (0.763)
2015	-0.0111 (0.392)	0.0812 (0.935)	-0.0241 (0.121)	-4.652 (0.531)	-0.0072 (0.683)	0.273 (0.865)
2016	-0.0029 (0.831)	-0.774 (0.439)	-0.0163 (0.360)	-0.7421 (0.346)	0.0083 (0.673)	-0.732 (0.648)
Cons	0.3269 (0.000)	12.070 (0.010)	0.2094 (0.000)	7.847 (0.500)	0.3792 (0.000)	13.33 (0.000)
N	483	497	184	186	299	311
R-squared (within)	0.3712	0.2478	0.7040	0.6218	0.4237	0.1639
R-squared (between)	0.1085	0.0001	0.0008	0.0008	0.2618	0.0059
R-squared (overall)	0.1201	0.0020	0.000	0.000	0.2745	0.0241
F Prob > F	22.90 (0.000)		29.85 (0.000)			
Wald chi Prob > Chi2		356.16 (0.000)		1783.88 (0.000)	178.06 (0.000)	118.84 (0.000)

*Coefficient value and P-value in (brackets). ***, ** and * indicate significant at 1%, 5% and 10% respectively. PDs: Permanent Differences, TDs: Temporary Differences, STRDs: Statutory Tax rate Differences, IOWN: Institutional Ownership, EREMEM: Executive Remuneration, PDOWN: Permanent Differences*Institutional ownership, TDOWN: Temporary Differences* Institutional Ownership, STRDOWN: Statutory Tax Rate Differences* Institutional ownership, PDEREM: Permanents Differences* executive Remuneration, TDEREM: Temporary Differences* Executive Remuneration, STRDEREM: Statutory Tax Rate differences* Executive Remuneration, Earnings Management, CI: Capital Intensity, LEV: Leverage, FOS: Foreign Sales, DIV: Dividends.